

U-matic S SP

PORTABLE VIDEOCASSETTE RECORDER

V0-8800P

Revised 1



SONY[®]

SERVICE MANUAL

SPECIFICATIONS

System

Recording system Rotary 4 heads (R/P: 2,
Simultaneous playback: 2)
helical scan
Luminance: FM
Chrominance: SC low-range
conversion

Video signal system
CCIR standards, PAL color

Video

Inputs VIDEO IN (BNC type) × 1
Composite, 1.0Vp-p ± 0.3Vp-p,
75 ohms, unbalanced, sync
negative
CAMERA (Q type) × 1
Composite, 1.0Vp-p ± 0.3Vp-p,
75 ohms, unbalanced, sync
negative
Separated Y/C,
Y: 1.0Vp-p ± 0.3Vp-p,
75 ohms, unbalanced, sync
negative
C: burst level, 0.3Vp-p ± 0.09Vp-p,
75 ohms, without, sync

Output VIDEO OUT (BNC type) × 1
1.0Vp-p ± 0.2Vp-p, 75 ohms,
unbalanced, sync negative

Horizontal resolution
SP mode recording: 300 lines
(both B/W and color)
Conventional recording (high band):
260 lines (both B/W and color)
In the Y/C separation mode,
SP mode recording: 330 lines
conventional recording (high band):
290 lines

S/N Color: More than 46 dB

Recording level control
Automatic

Audio

Inputs AUDIO IN CH-1/L/DUB, CH-2/R (XLR
3-pin, female) × 1 each
+4 dB/−20 dB/−60 dB
switchable
+4 dB: more than 10 kilohms,
balanced
−20 dB/−60 dB: more than
3 kilohms, balanced
CAMERA (microphone input) (audio
channel 2) +4 dB/−20 dB/−60 dB
switchable
+4 dB: more than 10 kilohms,
balanced
−20 dB/−60 dB: more than
3 kilohms, balanced

Outputs AUDIO OUT CH-1/L (MONITOR),
CH-2/R (XLR 3-pin, male) × 1 each
+4 dB (at 600-ohm load), balanced
HEADPHONES (JM-60 headphones
binaural jack)
For 8-ohm headphones
Level adjustable (from −40 to
−20 dB)

S/N SP mode: More than 52 dB (at 3%
distortion level without Dolby noise
reduction)
Conventional mode:
More than 50 dB (at 3% distortion
level)

Frequency response

50 to 15,000 Hz
Distortion 2% or less
Recording level control
Manual or AGC selectable

Other functions

Simultaneous playback picture and tape remaining
time indication Possible with a camera having the
return video function

Pause Possible
Tracking control Possible
Edit Assembly recording
Audio dubbing

Remote control Record, playback, fast forward,
rewind, pause and stop, with an
optional RM-770 remote control
unit

Tape transport

Tape speed 95.3 mm/sec.
Wow and flutter less than ±0.2% p-p (DIN)
Recording time 20 min. continuously with KSP-S20/
KCS-20, 10 min. continuously
with KSP-S10/KCS-10

Fast forward and rewind time
Within 3 minutes

Operating time Approx. 1 hour continuously
connected to a DXC-M7P camera,
with two fully charged NP-1A
batteries

Tape compatibility U-matic video cassette tapes
Usable tape KSP-S and KCS type tape

Power and other requirements

Power requirements
12V DC

Power consumption
17W

Operating position Both vertical and horizontal
Operating temperature
0°C to 40°C (32°F to 104°F)

Storage temperature
−20°C to +60°C (−4°F to +140°F)

Dimensions 263 × 130 × 354 mm (w/h/d)
(10³/₈ × 5¹/₈ × 14 inches) not incl.
projecting parts and controls

Weight Approx. 6.2 kg (13 lb 11 oz)

Supplied accessories
Operating Instructions (1)
Shoulder strap (1)

• Design and specifications subject to change without
notice.

Optional accessories

RM-770 remote control unit
BKU-706 time code generator
NP-1A, NP-1 rechargeable battery pack
BC-1WA battery charger
VMC-1MQ cable for the video monitor equipped with an
8-pin VTR connector
CMA-8CE camera adaptor
CCQX-2, CCQX-3 cable for the CMA-8CE camera adaptor
KSP-S and KCS type video cassette
KCS-1CL cleaning cassette
Color video camera DXC-325P, DXC-1800P, DXC-1820P/1821P,
DXC-3000P/3000AP, DXC-M3P/M3AP, DXC-M7P,
BVP-300AP, BVP-330AP, BVP-150P
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LC-8800 carrying case

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SECTION 1

GENERAL DESCRIPTION

1 – 1. FEATURES

The VO-8800P is a compact U-matic video cassette recorder designed for portable use. Its SP (Superior Performance) design ensures clearer pictures than before that will satisfy the professional standards.

The major features of the VO-8800P are as follows:

Small size and light weight

The VO-8800P is designed not only for small size and light weight but also for operation in either a vertical or a horizontal position. When used together with a Sony color video camera, it is ideally suited for both outdoor and indoor recording.

High quality picture ensured by the SP system

Recording and playback using SP tapes specially designed for the SP (Superior Performance) system provide clearer and sharper pictures than before. Even higher quality of picture is ensured when you use a camera with Y/C separation capability to separately input Y and C signals to the VO-8800P. The recorder is provided with a mechanism which automatically detects separated Y/C inputs when the recorder is used together with a video camera capable of giving separated Y/C outputs.

Hi-Fi sound and high recording/playback performance for sounds

The Dolby NR (Noise Reduction) C type system offers you high quality of sound with reduced hiss noise when you use KCS-SP tapes. The audio input and output connectors used are 3-pin XLR connectors of the balanced type designed for use with professional audio equipment. The audio recording level can be adjusted both automatically and manually (an input audio level limiter is provided to act in manual adjustment).

Devices for reliable camera recording

Video confidence

While in camera recording using a camera with return video function, you can monitor on the camera's viewfinder the simultaneous playback picture (the picture which has just been recorded). This allows you to check if the recording has been made properly.

Warning system

When the tape comes to its end or the battery runs down, you will be alerted by the warning lamp and cursor blinking or getting lit. Simultaneously, an audible alarm will sound through the headphones. When using a camera equipped with a Sony Q type (14-pin) connector, the warning lamp in its viewfinder screen will blink in unison with the warning lamp on the VO-8800P.

Indication of tape remaining time

When recording with a camera having a return video button, you can check the tape remaining time on the camera's viewfinder screen.

Easy replacement of battery

The battery is replaceable easily and quickly.

Editing capability

Smooth transition between scenes

Video cassette programs can be composed shot-by-shot without any irregularities at scene changes because the quick playback servo system guarantees a clean cut every time.

Assembly of two video sources

Assembly of two video sources connected to the CAMERA and VIDEO IN connectors can be accomplished simply by changing the setting of the VIDEO CAMERA/LINE switch.

Audio dubbing

You can add a narration or music to tapes after recording.

Other features

Time code recording/playback function

When the optional time code generator BKU-706 is set in your unit, the EBU time code can be recorded on and played back from the address track of the tape.

External sync system

In the playback mode, the recorder will operate with an external sync system when the video signal is connected to the VIDEO IN connector.

Adaptable for operation on DC or AC

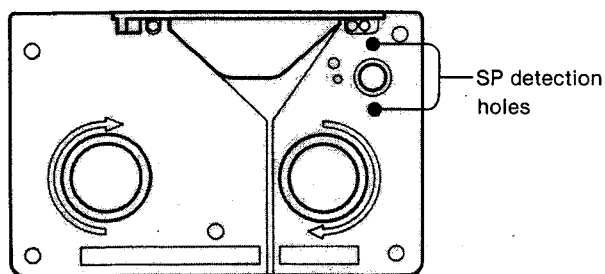
Use of Sony battery packs NP-1A (optional) is convenient for outdoor camera recording with the VO-8800P. You can also use AC power by connecting the recorder to an AC power source through the Sony camera adaptor CMA-8CE (optional).

1 - 2. NOTES ON VIDEO CASSETTE

The SP tapes which can be used with the VO-8800P are KSP-S20 and KSP-S10. As for conventional U-matic tapes, tapes of KCS series can be used.

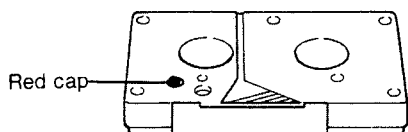
U-Matic Cassette Tape of KSP-S Series

The KSP-S series cassette tapes with high durability have been developed for SP mode recording/playback and feature characteristics best suiting the SP system. They have detection holes in the bottom face of the cassette shell to automatically set U-matic SP VTRs to the SP mode recording.



About the red cap in the bottom of a cassette

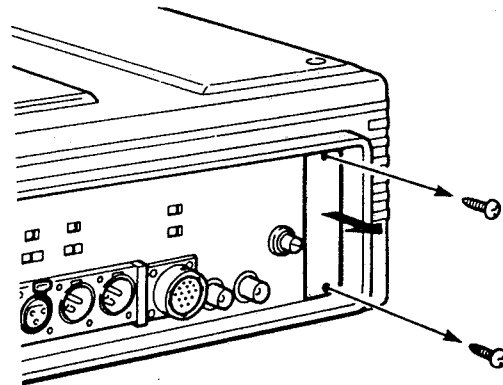
When you re-record on an already recorded tape, the original record will be erased. If you don't want lose the material recorded on a tape, remove the red cap on the bottom of its cassette. This will protect the tape against accidental erasure of the previous record even when the VTR's REC button is pressed. Before you start recording, always make sure that the red cap is in place on the bottom of a cassette you are going to use. If a cassette with no red cap is inserted, you cannot get an E-to-E mode picture on the monitor screen or camera's viewfinder.



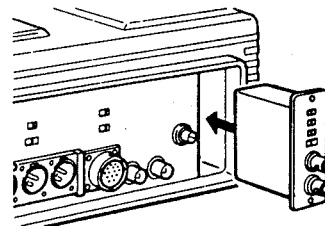
1 - 3. TIME CODE GENERATOR INSTALLATION AND SETTING

If you use the BKU-706 time code generator (optional), you can record time codes (LTC and user bits) and see the recorded time codes on the monitor screen.

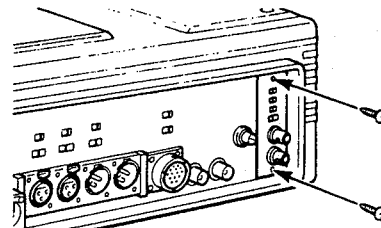
- 1) Remove the cover of the VO-8800P.



- 2) Insert the BKU-706 into the VO-8800P until the card edge connectors connect firmly.



- 3) Secure the BKU-706 with the screws removed in step 1.

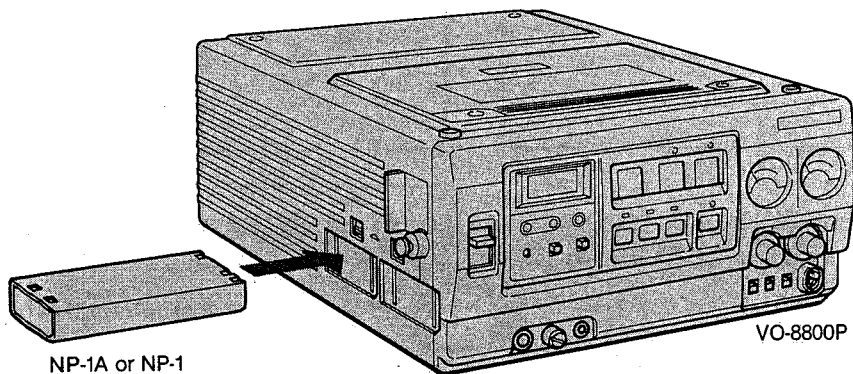


1 - 4. POWER SOURCES

The VO-8800P can be operated either with DC or AC power supply

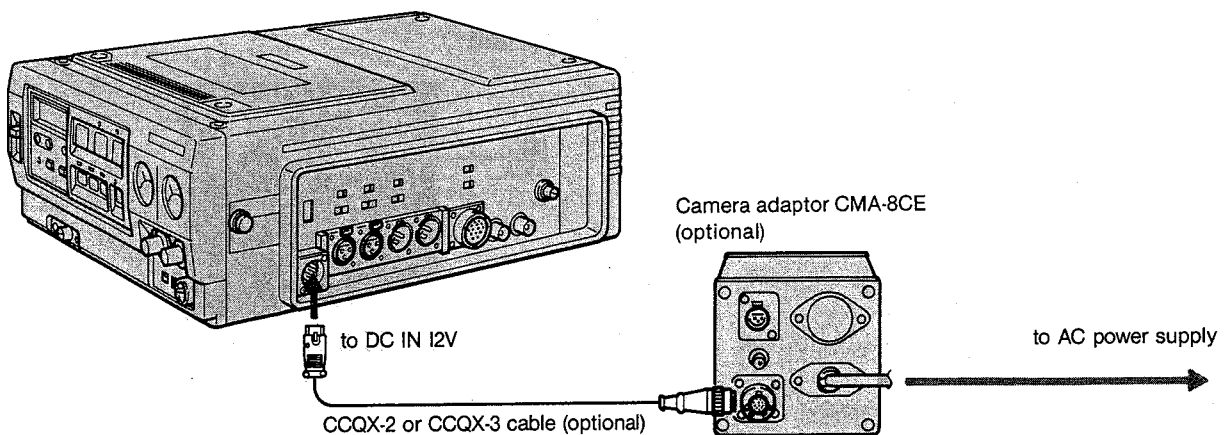
Battery Operation

- Set one or two NP-1A or NP-1 rechargeable battery packs (optional) in the battery compartment(s).
- To remove the battery pack, push up the button located just above the battery compartment.



AC Power Operation

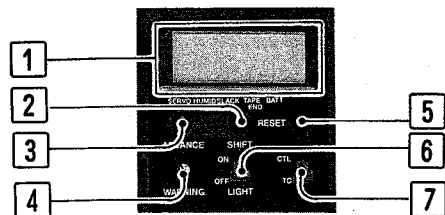
- Connect the CMA-8CE camera adaptor (optional) as illustrated.
- When the plug is connected to the DC IN 12V connector, power supply from the battery will be automatically disconnected.



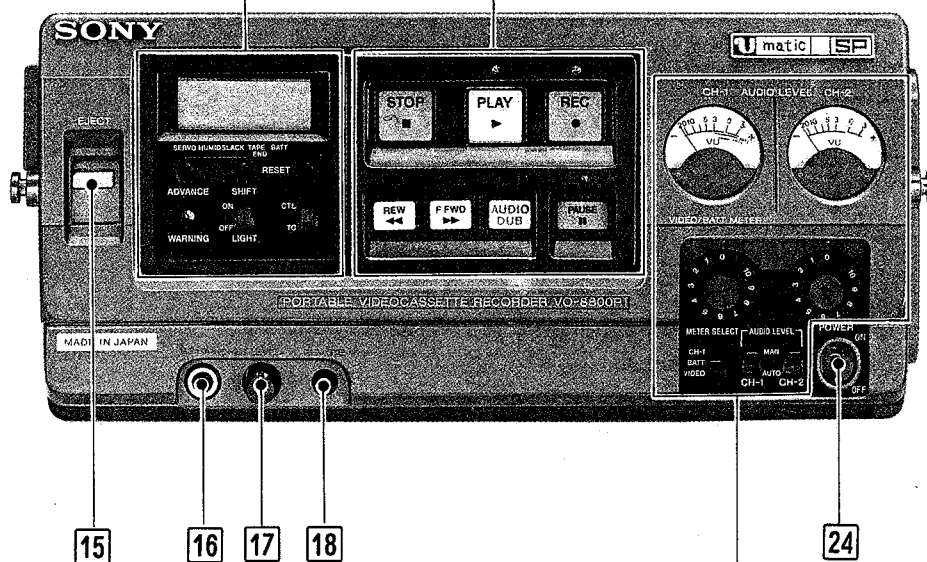
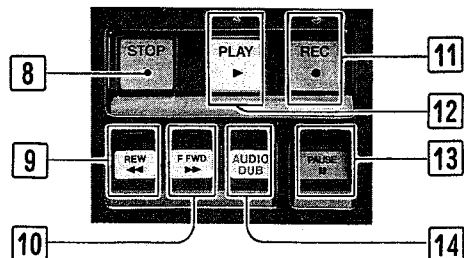
1 - 5. FUNCTION AND LOCATION OF PARTS AND CONTROLS

CONTROL PANEL

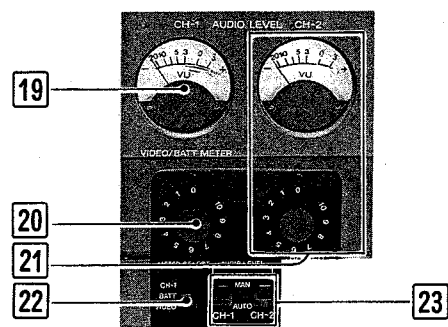
Display section



Tape controls

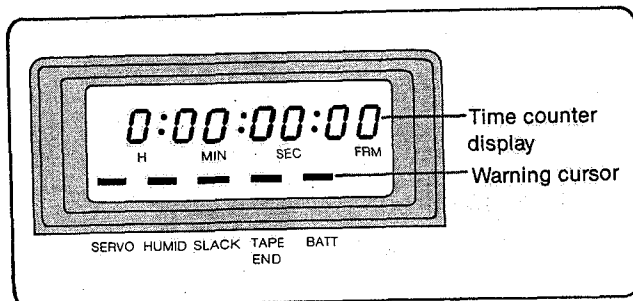


Meter section

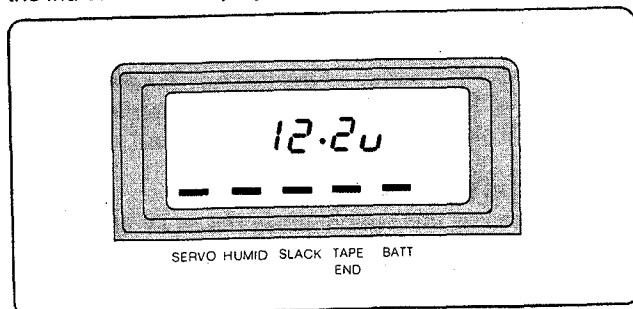


Display section

1 Display window



The time counter display indicates the time code, tape running time calculated by counting the CTL signals, and the voltage of power supply. Any of these indications is selectable with the CTL/TC selector [7] or METER SELECT switch [22]. When the METER SELECT selector is set to BATT, however, the indication is fixed to power supply voltage. The voltage indication range is from 11.0V to 13.2V (at minimum increments of 0.2V). For example, if the battery voltage is 12.2 V, changing the position of the METER SELECT switch to BATT will change the indication on display as shown below.



When the actual voltage goes beyond the range, the indication stays at the marginal value (11.0V or 13.2V) and blinks.

A cursor associated with a warning indication indicates the operating status of the VO-8800P.

SERVO: Blinks when the drum servo or capstan servo is not locked.

HUMID: Lights when moisture has been condensed on the head drum.

SLACK: Blinks when the tape is slack on the take-up side of the tape transport system or when the VO-8800P detects that the drum has stopped rotating.

TAPE END: Starts blinking about 1.5 minutes before the end of the tape during recording. The cursor will stay lit when the tape comes to its end.

BATT: Starts blinking when the voltage supplied by the battery falls to 11.45V, indicating that the battery is almost run out. When the voltage falls to 11V, the cursor will light steadily, and the tape will automatically stop.

- For further details, refer to the "Warning System."

2 SHIFT button

Can work only when the BKU-706 time code generator (optional) is set in the recorder.

When one of the time code digits blinks in the time counter display, indicating that now you can set the time code to the desired value, pressing this button makes the blinking digit stop blinking, and makes the digit to the right of that digit start blinking. For the time code setting procedure, refer to the operation manual for BKU-706 time code generator.

3 ADVANCE button

Can work only when the BKU-706 time code generator (optional) is set in the recorder.

Each press of this button increases the value of the blinking digit in the displayed time code by one. Refer to the operation manual for the BKU-706 time code generator.

4 WARNING lamp

Lights up or blinks when something wrong or undesirable has happened with your recorder. For details refer to "Warning System".

5 RESET button

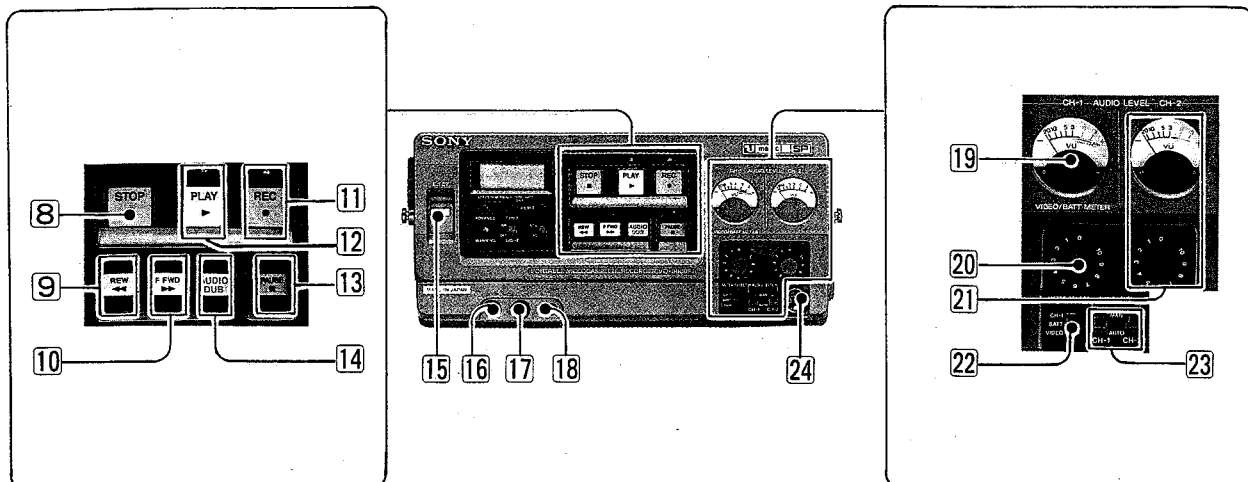
With the METER SELECT switch [22] being set to CH-1 or VIDEO, the current CTL indication in the counter display can be reset by pressing this button.

6 LIGHT switch

Set the switch to ON to illuminate the display window [1] and level meters [19] [21]. Set the switch to OFF to turn off the illumination.

7 CTL/TC selector

Switches the display in the counter display. Set the switch to CTL for tape running time calculated by counting the CTL signals or to TC for time code. If the BKU-706 time code generator (optional) has not been set in the recorder, the tape running time will always be displayed even when the CTL/TC selector is set to TC. If the METER SELECT switch [22] is set to BATT, the supply voltage will always be displayed regardless of the setting of this switch.



Tape Controls

8 STOP ■ button

Press this button to stop the tape.

9 REW ◀◀ (rewind) button/lamp

Press to rewind the tape; the lamp lights. The high-speed reverse playback picture with guard band noise can be seen during rewinding (picture search). When the tape is rewound all the way, the recorder will automatically stop.

10 F FWD ▶▶ (fast forward) button/lamp

Press to advance the tape rapidly; the lamp will go on. The high-speed playback picture with guard band noise can be seen on the viewfinder of the camera or on the video monitor (picture search). When the tape is wound all the way, the recorder will automatically stop.

11 REC ● (record) button/lamp

While pressing this button, press the PLAY button 12 to start a recording of the input video signal. The lamp will blink during the recording. If only this button is pressed with the unit in the stop mode, the E-to-E mode picture will be displayed on the video monitor or in the camera's viewfinder.

In the fast forward, rewind or playback mode, the E-to-E mode picture can be monitored while this button is pressed.

12 PLAY ▶ button/lamp

Press to play back the tape. For recording, press this button while pressing the REC button 11. For audio dubbing, press this button while pressing the AUDIO/DUB button 14.

13 PAUSE ■■ button/lamp

Press to momentarily stop the tape in the record or playback mode. The lamp will blink during the pause mode. Press this button again to release the pause mode. During the playback pause mode, a still picture will be displayed.

- If camera recording was started by pressing the VTR start/stop button of the camera, the PAUSE button will be disabled. To stop the recording, press the VTR start/stop button of the camera.

14 AUDIO/DUB button/lamp

While pressing this button, press the PLAY button 12 to record audio signal on audio channel 1. When this button alone is pressed, the recorder will be set to the audio channel E-to-E mode, which allows you to make audio recording level adjustments before starting audio dubbing.

15 EJECT lever

Press down to raise the cassette compartment. The function of this lever is executed with priority over the function of any of the tape control buttons.

16 HEADPHONES jack (JM-60 headphones binaural jack)

Connect 8-ohm headphones for audio monitoring. The sound selected by the CH-1/MIX/CH-2 selector on the connector panel will be heard. If the WARNING lamp is lit or blinks, a beep will sound in the headphones.

17 LEVEL control

Adjust the headphones level with this control.

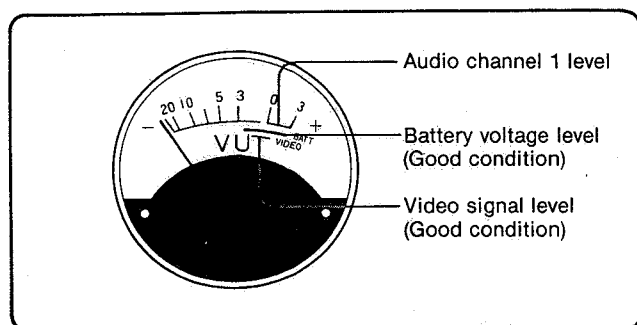
18 REMOTE jack (special mini jack)

Connect an RM-770 remote control unit (optional).

Meter Section

19 CH-1/VIDEO/BATT METER

Indicates the audio channel 1 recording level, input video signal level or battery voltage. Change display using the METER SELECT switch 22.



20 CH-1 level control

Use this control to manually adjust the audio channel 1 recording level.

21 CH-2 level meter and control

Use this control to manually adjust the audio channel 2 recording level.

22 METER SELECT switch

Selects display on the CH-1/VIDEO/BATT METER 19.

CH-1: Audio channel 1 recording level

BATT: Battery voltage (can also be displayed on the Display window 1.)

VIDEO: Video recording level

23 AUDIO LEVEL MAN/AUTO selector

Selects automatic or manual adjustment of the audio recording level.

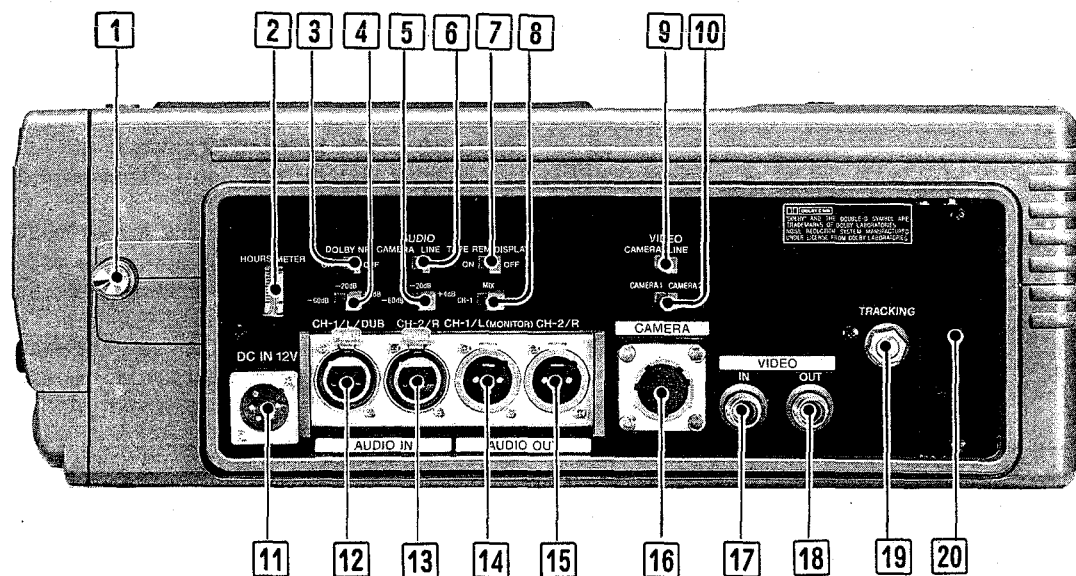
MAN: For manual adjustment. An excessive input that may be encountered during manual adjustment is blocked by a limiter to minimize distortion at the peaks.

AUTO: For automatic adjustment. The automatic gain control circuit will be activated to regulate the audio level to assure optimum recording.

24 POWER switch

Turns ON or OFF the power. When the power is turned on, time code, tape running time, or battery voltage will be displayed in the display window.

CONNECTOR PANEL



1 Strap lug

2 HOURS meter

Calculates and indicates the hours the recorder has been in service. (One division represents 100 hours.)

3 DOLBY NR (Dolby noise reduction) switch

Use this switch to turn ON or OFF the Dolby NR system when recording or playing back with KSP-S tape.

4 -60dB/-20dB/+4dB (audio channel 1 input level) selector

Set this selector according to the audio output level of the audio source connected to the AUDIO IN CH-1/L/DUB connector **12**.

5 -60dB/-20dB/+4dB (audio channel 2 input level) selector

Set this selector according to the audio output level of the audio source connected to the AUDIO IN CH-2/R connector **13** (with the AUDIO CAMERA/LINE selector **6** being set to LINE), or that of the microphone built in or connected to a camera connected to the CAMERA connector **16** (with the AUDIO CAMERA/LINE selector **6** being set to CAMERA).

6 AUDIO CAMERA/LINE selector

Selects the connector to be used for inputting a signal to audio channel 2.

CAMERA: To use the CAMERA connector

LINE: To use the AUDIO IN CH-2/R connector

7 TAPE REM DISPLAY switch

With this switch being set to ON, you can get, while in camera recording using a camera with return video capability, a display of tape remaining time on the camera's viewfinder by pressing the return video button on the camera.

8 CH-1/MIX/CH-2 selector

Selects audio output from the HEADPHONES jack on the control panel or the AUDIO OUT CH-1/L (MONITOR) connector **14** on the connector panel.

CH-1: Audio output from audio channel 1

MIX: Mixed audio output from channels 1 and 2

CH-2: Audio output from audio channel 2

9 VIDEO CAMERA/LINE selector

When video signals are being input to both the CAMERA connector [16] and VIDEO IN connector [17], select the signal to be recorded using this selector.

CAMERA: To record the video signal connected to the CAMERA connector

LINE: To record the video signal connected to the VIDEO IN connector

When a video signal is input to either the CAMERA or VIDEO IN connector only, that signal will always be recorded regardless of the setting of the selector.

10 CAMERA 1/CAMERA 2 selector

Select the position of this selector depending on the video source to be connected to the CAMERA connector [16].

CAMERA 1: To connect a DXC series camera or a video monitor with an 8-pin connector

CAMERA 2: To connect a BVP series camera or a camera with SAVE function (for saving battery power)

11 DC IN 12V connector (XLR, 4-pin)

You can operate the VO-8800P with AC power supply by connecting a CMA-8CE camera adaptor (optional) to this connector using a CCQX-2 or CCQX-3 cable (optional).

12 AUDIO IN CH-1/L/DUB connector (XLR, 3-pin)

Connect a microphone or an audio line input source for the recording of the audio channel 1 or for audio dubbing.

13 AUDIO IN CH-2/R connector (XLR, 3-pin)

Connect an audio source for recording of audio channel 2. When the microphone incorporated in the camera is to be used as the audio source, connect the camera to the CAMERA connector [16] and set the AUDIO CAMERA/SELECTOR [6] to CAMERA.

14 AUDIO OUT CH-1/L (MONITOR) connector (XLR, 3-pin)

Outputs the audio signal selected by the CH-1/MIX/CH-2 selector [8].

15 AUDIO OUT CH-2/R connector (XLR, 3-pin)

Outputs the audio signal of channel 2.

16 CAMERA connector (Q, 14-pin)

Connect a Sony color video camera or video monitor. A color video camera with Q type connector can be directly connected to this connector. Use a VMC-1MQ cable (optional) to connect a video monitor having an 8-pin connector.

17 VIDEO IN connector (BNC)

Connect a composite video signal. When the VIDEO CAMERA/LINE selector is set to LINE, the signal connected to this connector can be recorded.

18 VIDEO OUT connector (BNC)

Outputs composite video signal. Connect the video input connector of a video monitor or another VTR.

19 TRACKING control

If tracking deviation occurs during playback of a tape recorded by another VTR, adjust this control. (Tracking deviation causes horizontal stripes or noise to appear in the playback picture.)

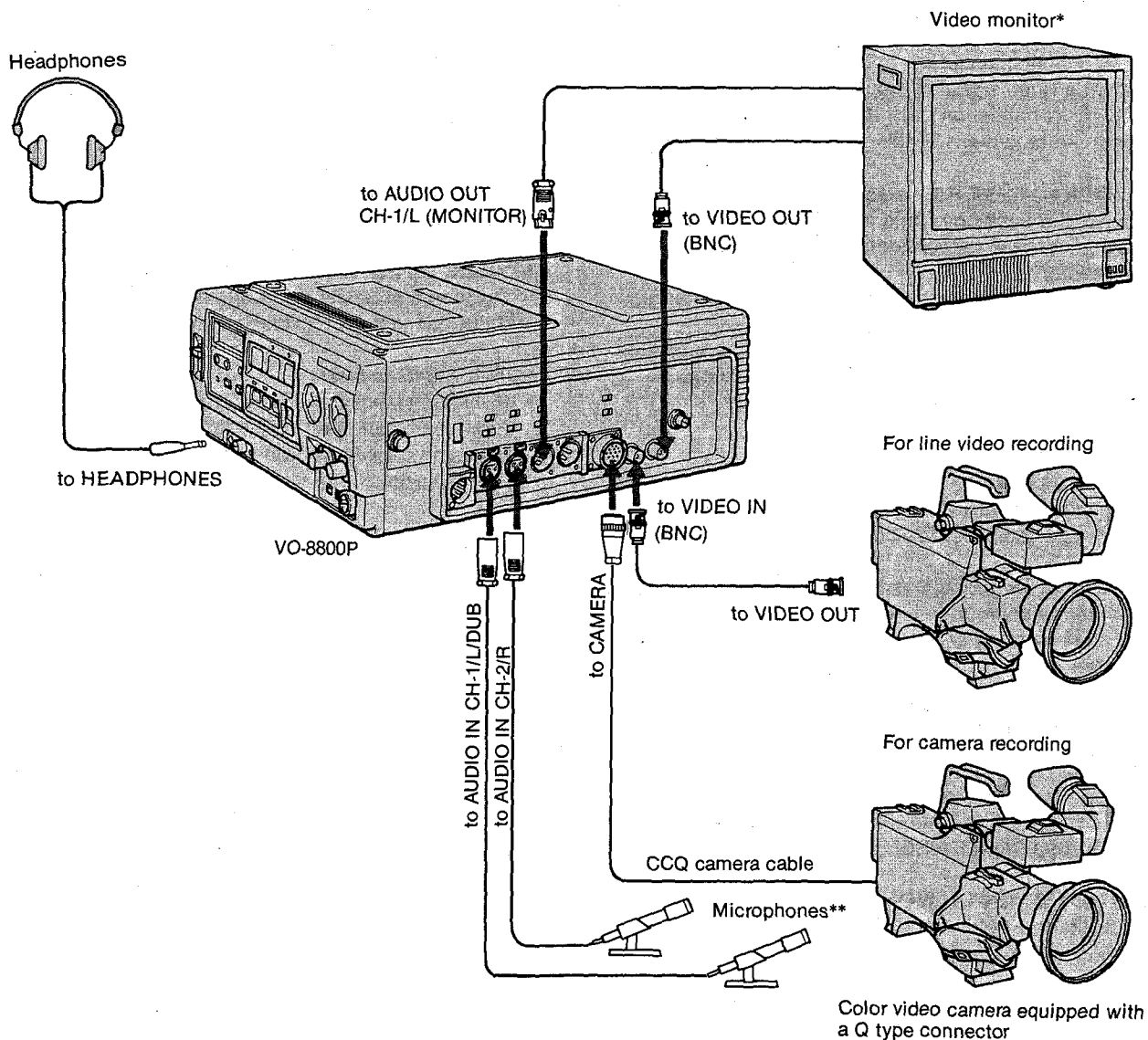
20 Time code generator compartment

To record a time code on the tape, set a BKU-706 time code generator (optional) in this compartment. For the time code recording procedure, refer to the operation manual for the BKU-706 time code generator.



1 - 6. CONNECTIONS

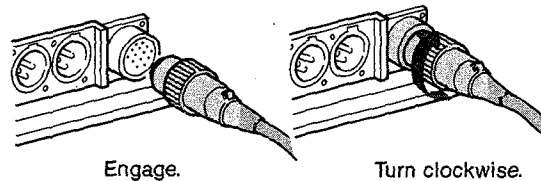
1 - 6 - 1. Camera Recording



* The video monitor is not always necessary for camera recording.

** The microphones are not always necessary when using a video camera with Q type connector. However, when using a camera connected to the VIDEO IN connector, at least one microphone is necessary if you want to record the sound, too, on the spot.

How to connect to the CAMERA connector



E-to-E (Electric to Electric) mode

When the VTR is in this mode, the video and audio input signals having passed through the VTR's circuits are supplied from the output connectors. You can use this mode to adjust the audio level, warm up the camera, and determine the camera angle.

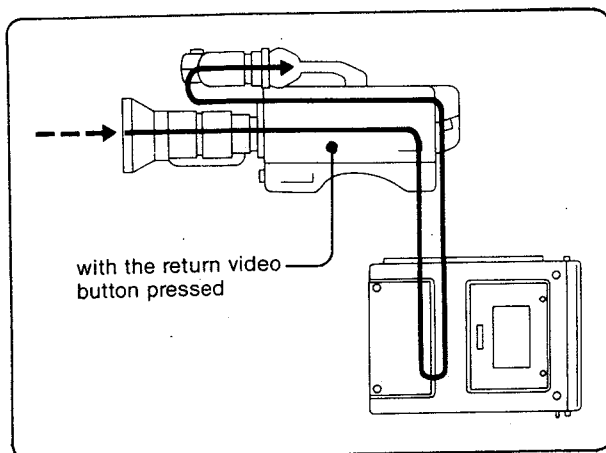
Pause operation

To temporarily stop the tape during camera recording, press the VTR start/stop button of the camera or the PAUSE ■■ button of the VTR. If you started recording by pressing the VTR start/stop button of the camera, you can temporarily stop only by pressing again the same button. That is, the VTR's PAUSE ■■ button won't work in that case. When the VTR is in the pause mode, the PAUSE lamp above its PAUSE ■■ button will blink. The E-to-E mode signal will remain displayed on the monitor connected to the recorder. To release the pause mode, press again the camera's VTR start/stop button or the VTR's PAUSE ■■ button.

- When the VTR is kept in the pause mode for about eight minutes, the tape will be automatically de-tensioned around the head drum for protection of both tape and heads.

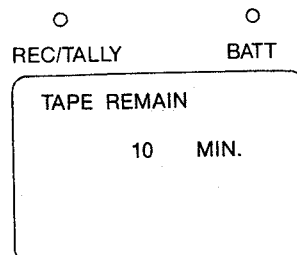
To check the video signal being recorded (simultaneous playback picture)

When you use a camera with return video capability, you can monitor the picture just being recorded (simultaneous playback picture) on the camera's viewfinder. To do so, keep pressing the return video button to let the camera receive the signal sent back from the VTR. (See the figure below.) This allows you to check if recording is being properly performed. At the same time, you will get a display of tape remaining time if you have set the TAPE REM DISPLAY switch to ON.



Indication of tape remaining time

During recording, you can get a display of tape remaining time on the simultaneous picture in the viewfinder as long as you keep pressing the camera's return video button.



| Indications on viewfinder | 15 MIN | 10 MIN | 7 MIN | 5 MIN | 4 MIN | 3 MIN | 2 MIN | 1 MIN | TAPE BEFORE END * |
|----------------------------|--------|--------|-------|-------|-------|-------|-------|-------|-------------------|
| Tape remaining time (min.) | 20 | 15 | 10 | 7 | 5 | 4 | 3 | 2 | 1.5 0 |

* Tape remaining time is not indicated any more.

When using the camera for line video recording (the camera connected to the VIDEO IN connector)

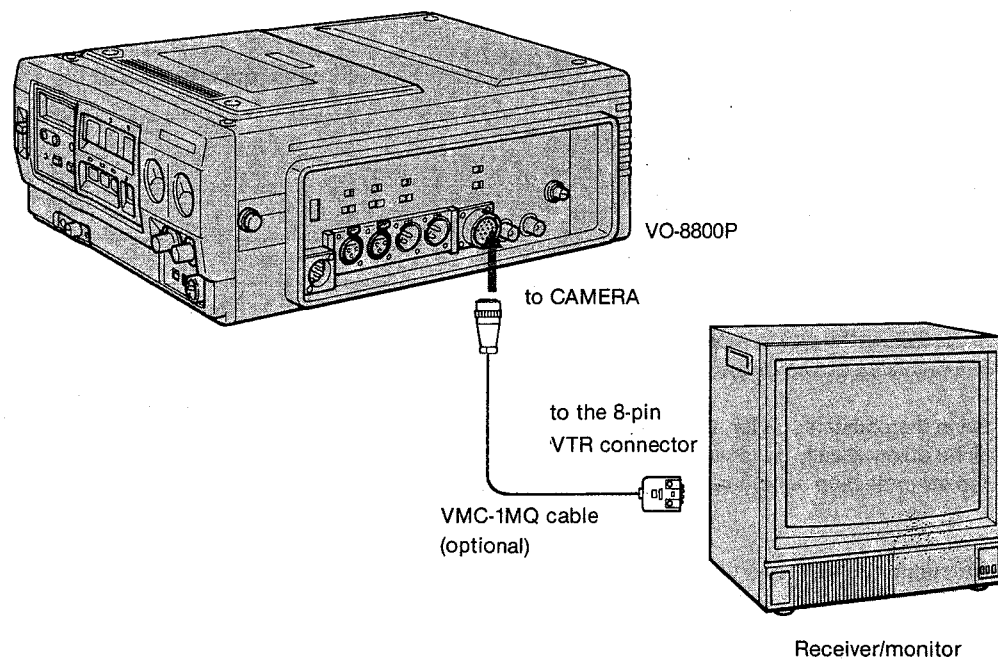
- The VTR start/stop button on the camera does not function. Use the VTR's buttons to start and temporarily stop the recording.
- The tally lamp on the camera will not go on.
- You cannot see any simultaneous playback picture (return video signal) in the viewfinder screen.

Time code recording

If you set the BKU-706 time code generator (optional) in the time code generator compartment, you can record time codes (LTC and user bits) and see the recorded time codes on the monitor screen. For details on the connection of the BKU-706 and the data setting procedure, refer to the operation manual for the BKU-706.

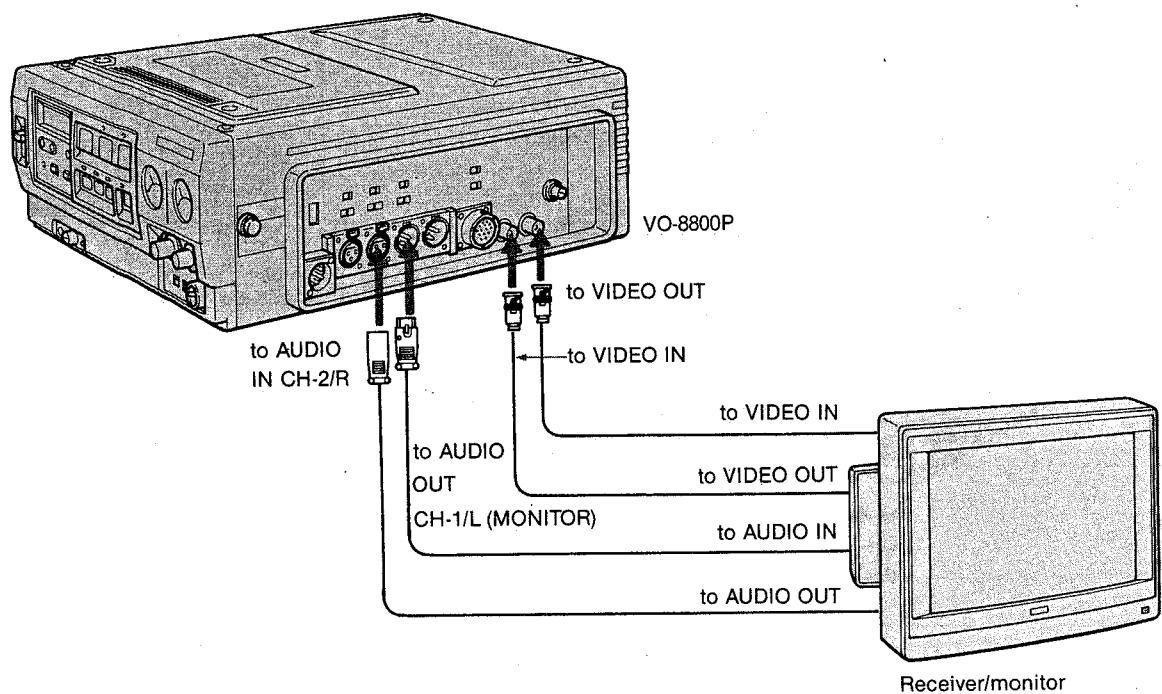
1 - 6 - 2. Recording TV Programs

When using a receiver/monitor equipped with an 8-pin connector



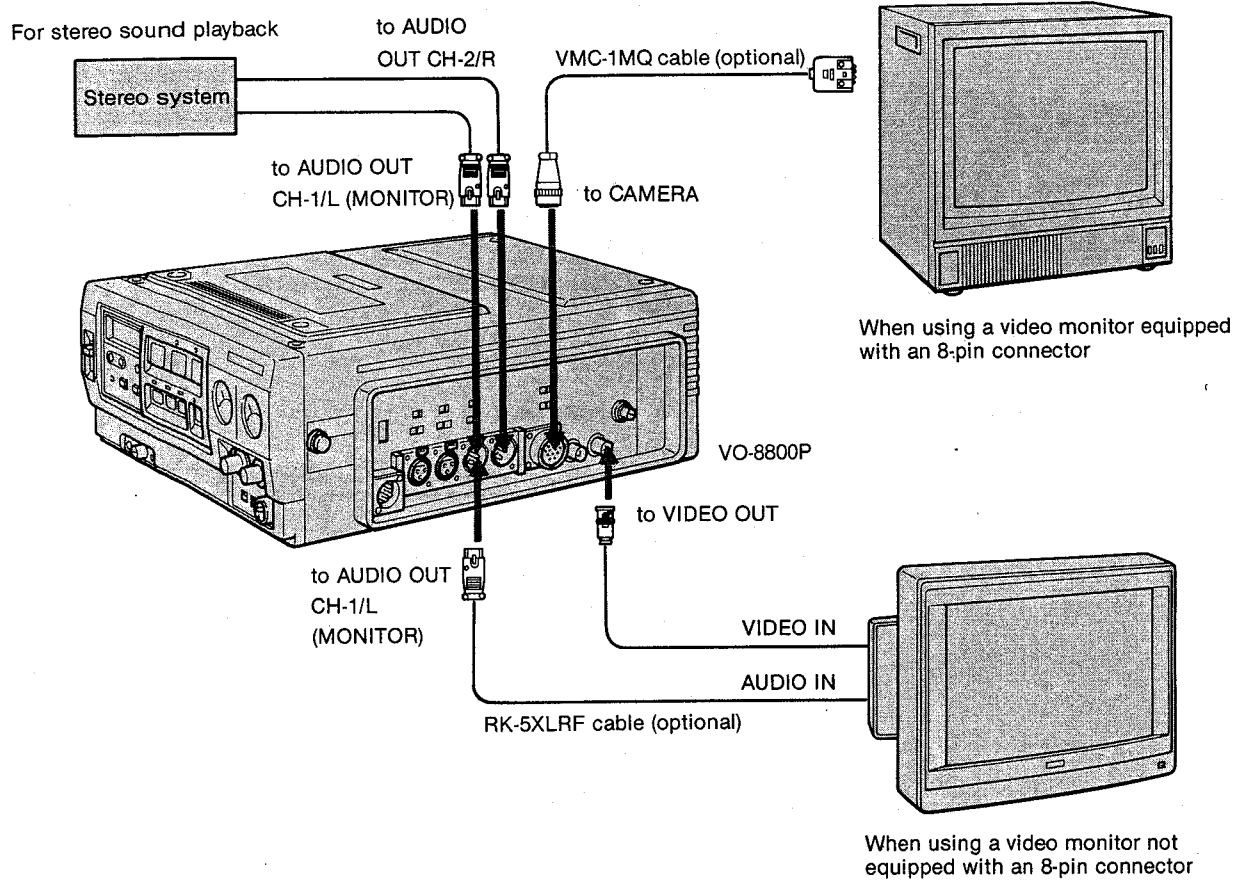
- Set both of the AUDIO and VIDEO CAMERA/LINE selectors to CAMERA.
- Set the CAMERA1/CAMERA2 selector to CAMERA1.
- Set the input selector of the video monitor to VTR.

When using a receiver/monitor not equipped with an 8-pin connector



- Set both of the AUDIO and VIDEO CAMERA/LINE selectors to LINE.
- Set the input selector of the video monitor to LINE.

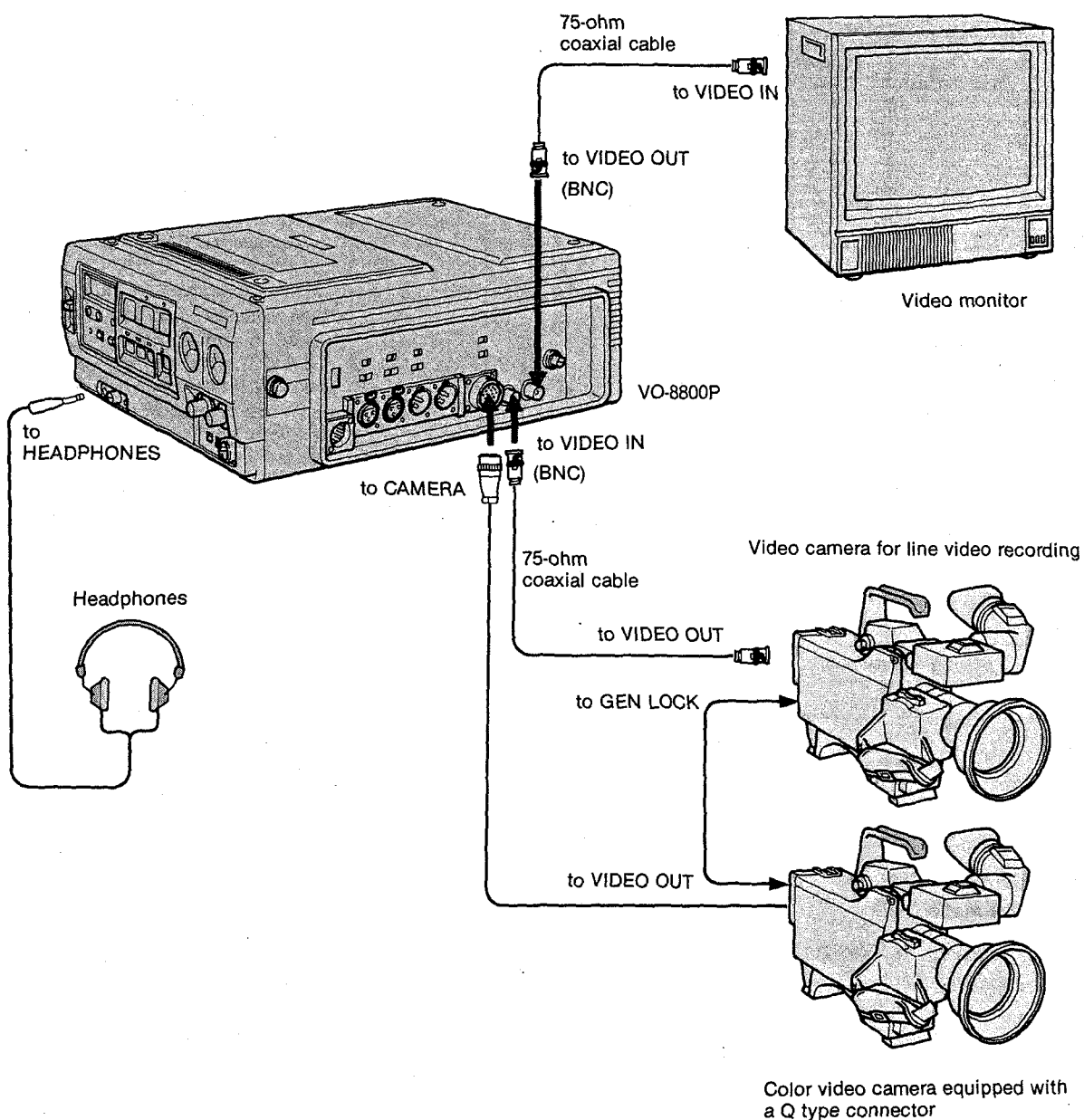
1 - 6 - 3. Playback



1 - 6 - 4. Editing





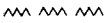


















Assembly Recording

With two video sources connected to the CAMERA and VIDEO IN connectors, you can assemble pictures from those sources by switching between them with the VIDEO CAMERA/LINE selector. This section explains assembly recording by supposing two video cameras (A and B) to be used as the video sources.









1 – 7. WARNING SYSTEM

The warning cursors and lamp, headphones tone and tally lamps of camera (with Q type connector) serve to advise you of the VTR status indicated in the table below. In the rightmost column are described the corresponding tape transport status and resulting influences especially on the recording function. In general, if the tape transport stops, the currently chosen function of the VTR cannot be performed any more whatever mode it may have been in. Actions you need to take in such case are also indicated in the same column.

| Warning cursors | Warning cursors/lamp | Headphones tone | VTR status | Camera tally lamps | | Tape transport status/Necessary action |
|-----------------|--|---|-----------------------|---|---|--|
| | | | | REC/TALLY | BATT*1 | |
| SERVO |  (In all modes) |  (In record mode) | Irregularity in servo |  (In record mode) | | Tape transport doesn't stop, but recording may not be performed correctly. Check the connections. |
| HUMID |  (In all modes) |  | Moisture condensation |  | | The VTR keeps recording except when the tape sticks to the head drum. If sticking of tape does happen or the VTR has been in other mode than record mode, it enters into pause mode. Push down the EJECT lever to remove the cassette. |
| SLACK |  (In all modes) |  | Tape slack |  | | Tape transport stops and the VTR doesn't record any more. Push down the EJECT lever and remove the cassette. If the cassette compartment won't rise, consult Sony's service personnel without turning off the power. |
| TAPE END |  (In record mode) |  | Near end |  (In record mode) | | Tape transport continues operate, and if having been in record mode the VTR keeps recording. |
| |  ⁺² (In all mode) |  ⁺² | Tape end |  ⁺² | | Tape transport stops, and the VTR cannot record any more. Replace the cassette with another. |
| BATT |  (In all modes) |  (In record mode) | Near end |  |  | Tape transport continues to operate, and if having been in record mode the VTR keeps recording. |
| |  (In all modes) |  | Discharge |  |  | Tape transport stops, and the VTR cannot record any more. Replace the batteries with fully charged ones. |

Meaning of the marks

| Warning cursors/lamp | Warning tone |
|--|---|
|  Blinks at 4 Hz |  1 second interval |
|  Blinks at 1 Hz |  1/4 second interval |
|  Lights up |  Continuous tone |

*1 The BATT lamp of the camera blinks when the battery of the VTR or the camera is exhausted.

*2 When recording stops, the warning cursor, lamp and tone go out.

Notice on moisture condensation

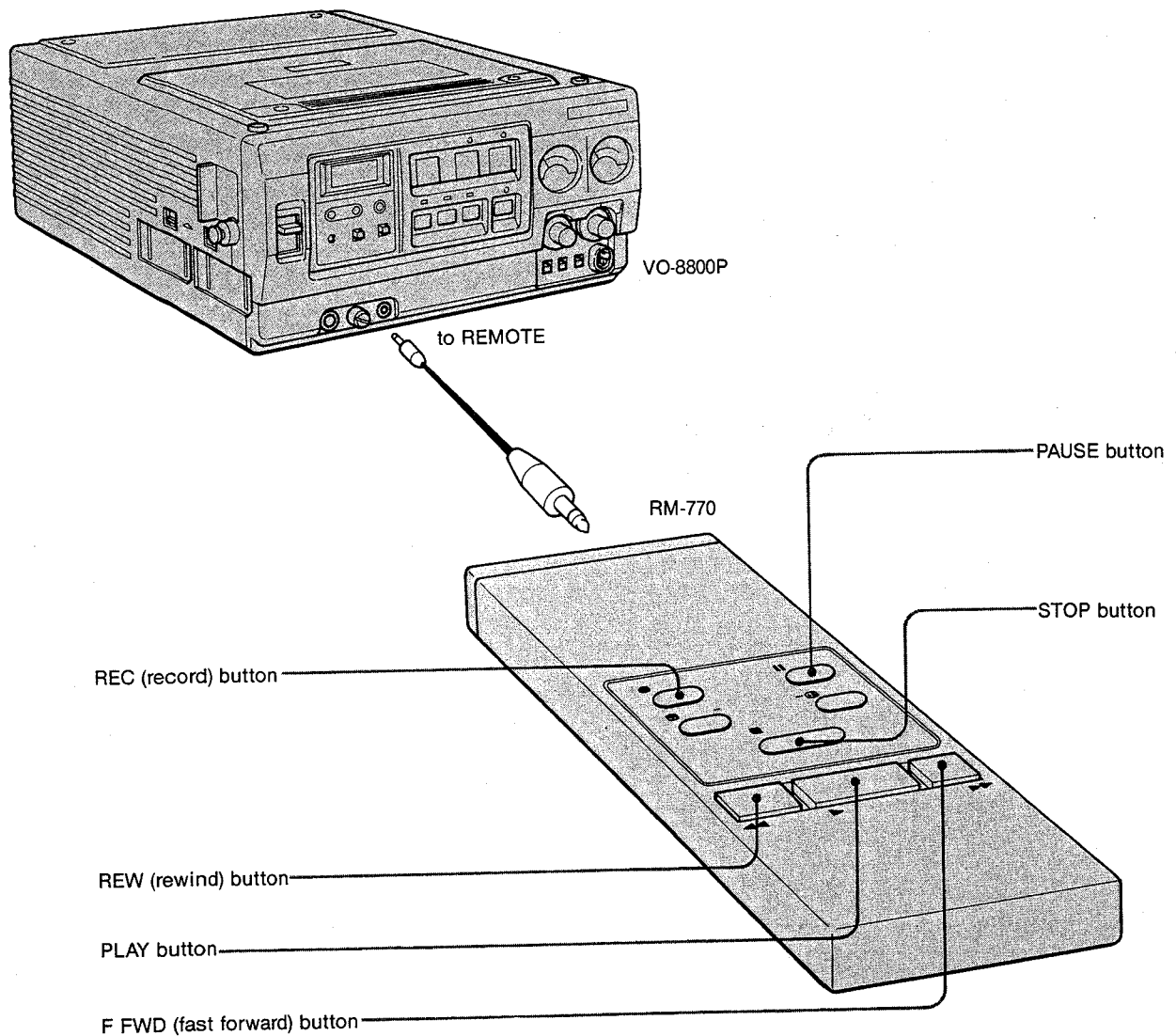
If the VTR is moved directly from a cold to a warm place or used in a very humid place, moisture contained in the air may condense on the drum assembly. This may result in damage to the tape when it adheres to the head drum.

To avoid this, take the following precautions.

- When you move the VTR from a cold to a warm place directly, be sure to remove the cassette.
- Before inserting a cassette, set the POWER switch to ON and check that the HUMID cursor does not appear. If it appears, do not insert a cassette. Turn off the power and wait until the HUMID cursor does not appear when the power is turned on.
- If moisture has condensed in the VTR with a cassette inserted, proceed as follows: If the power is off, set the POWER switch to ON. Press the EJECT button to remove the cassette. Turn off the power and wait until the HUMID cursor does not appear when the power is turned on.

1 – 8. REMOTE CONTROL

The VO-8800P can be remotely controlled from an optional RM-770 remote control unit. The function buttons of the unit correspond to those on the recorder.

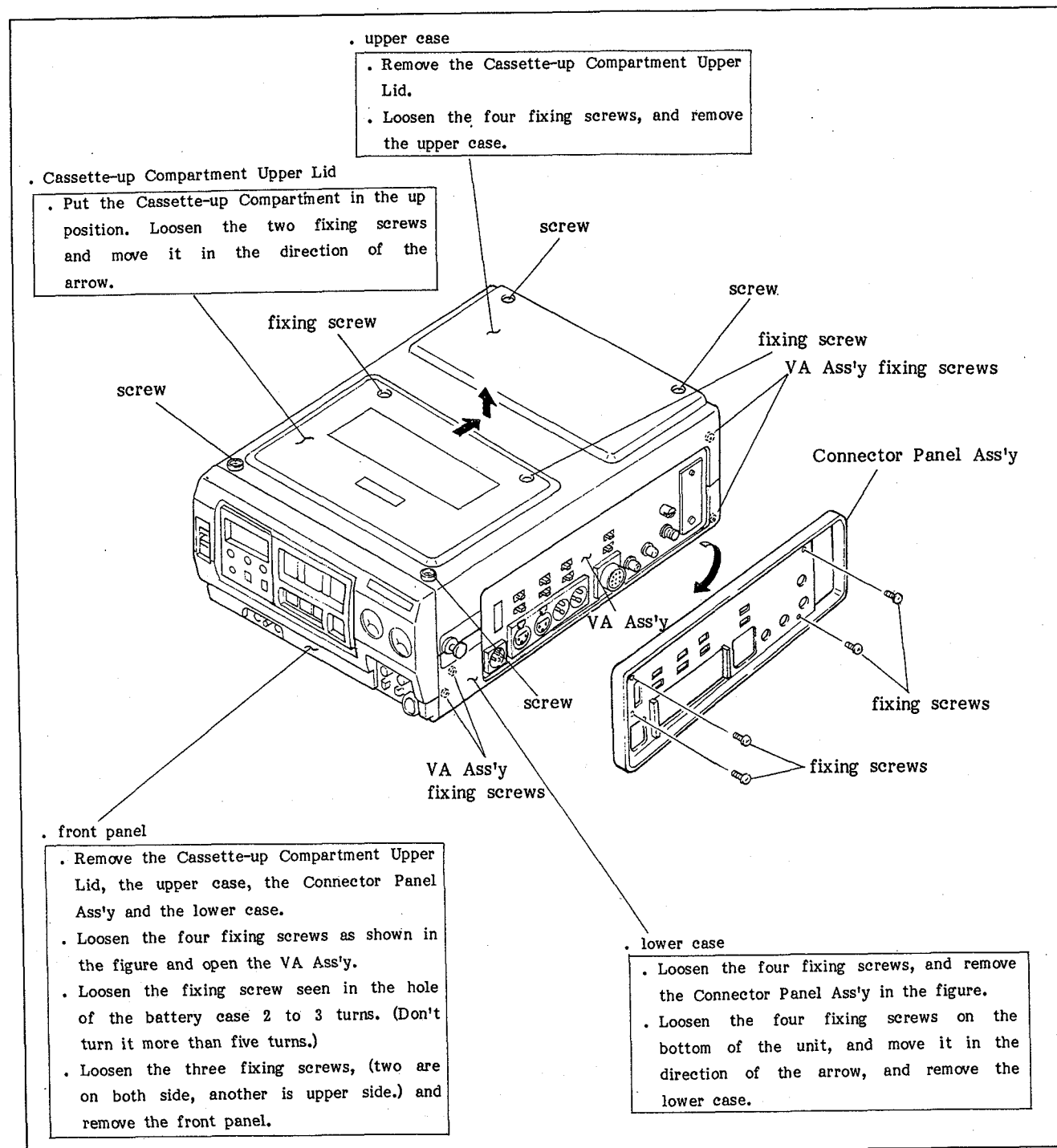


Notes

- The RM-770 cannot control the VTR without a remote control cable.
- The SEARCH-REV (reversed) and SEARCH-FWD (forward) buttons on the RM-770 cannot be used with the VO-8800P.

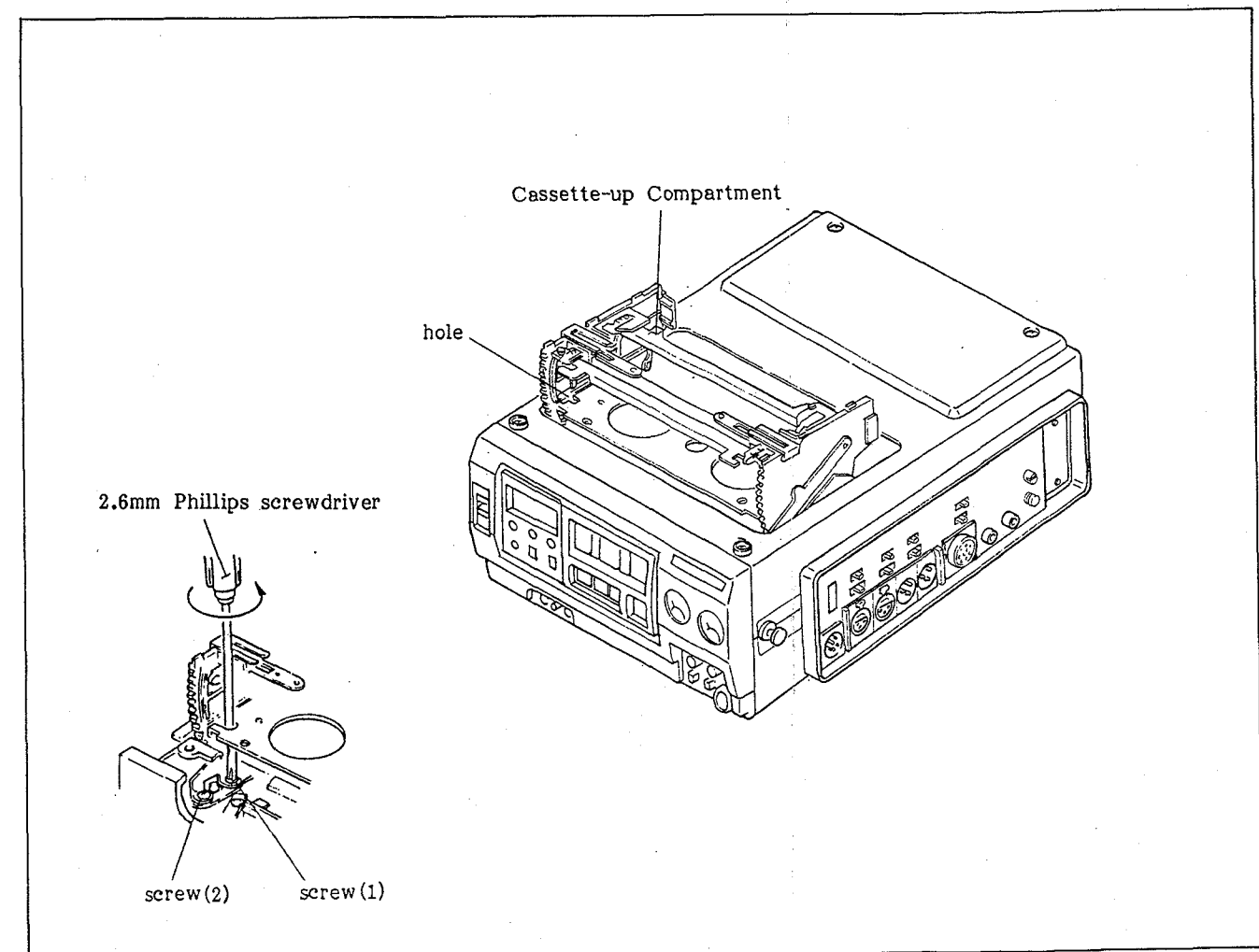
SECTION 2 SERVICE INFORMATION

2-1. REMOVAL OF THE CABINET



2-2. CASSETTE-UP COMPARTMENT REMOVAL PROCEDURES

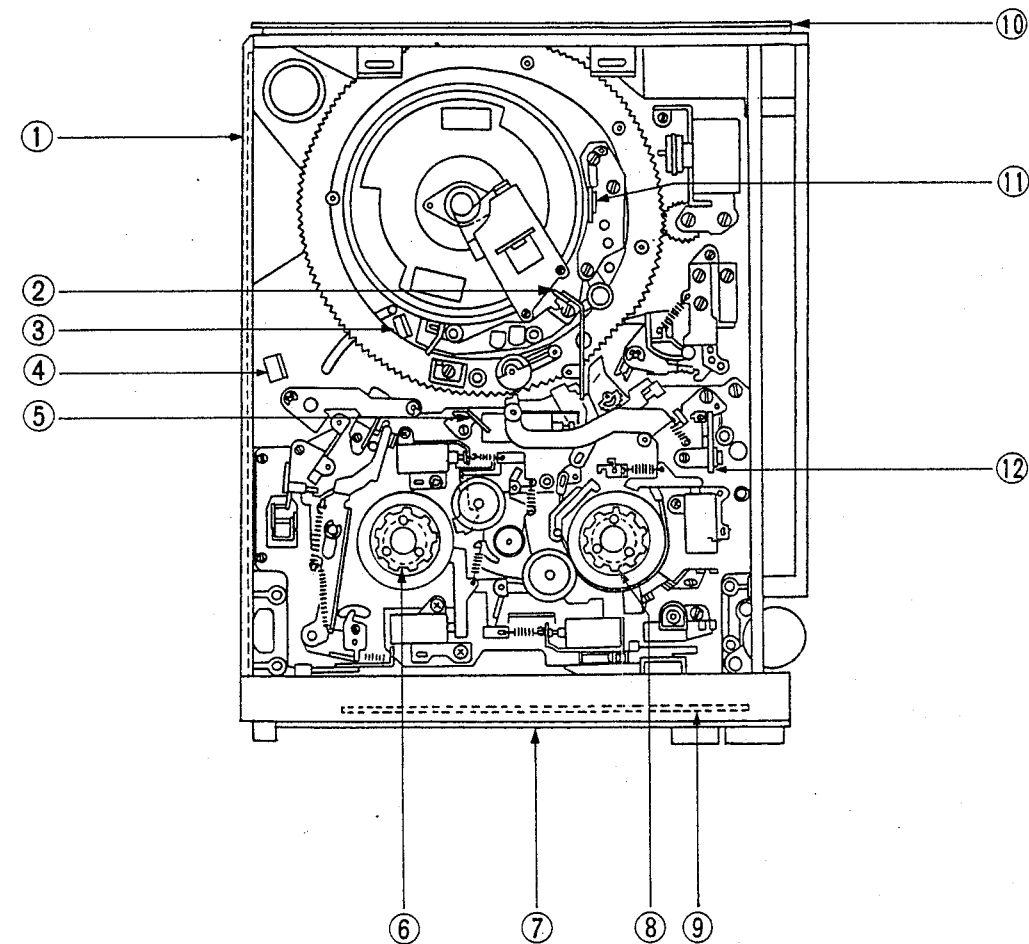
- (1) Remove the Cassette-up Compartment Upper Lid. (Refer to Section 2-1.)
- (2) Put the Cassette-up Compartment in down position.
- (3) Insert a phillips screwdriver into the left side hole of the Cassette-up Compartment, as shown in the figure, and loosen the fixing screw (1) as shown in the detailed view. The fixing screws can not be detached since they uses retainers on the Cassette-up Compartment.
- (4) Loosen the fixing screw (2), as shown in the detailed view.
- (5) Loosen the right side fixing screws in the same manner.
- (6) Press the EJECT button and put the Cassette-up Compartment in the up position. Remove the Cassette-up Compartment with the EJECT button pressed.



2-3. MAIN PARTS LOCATION

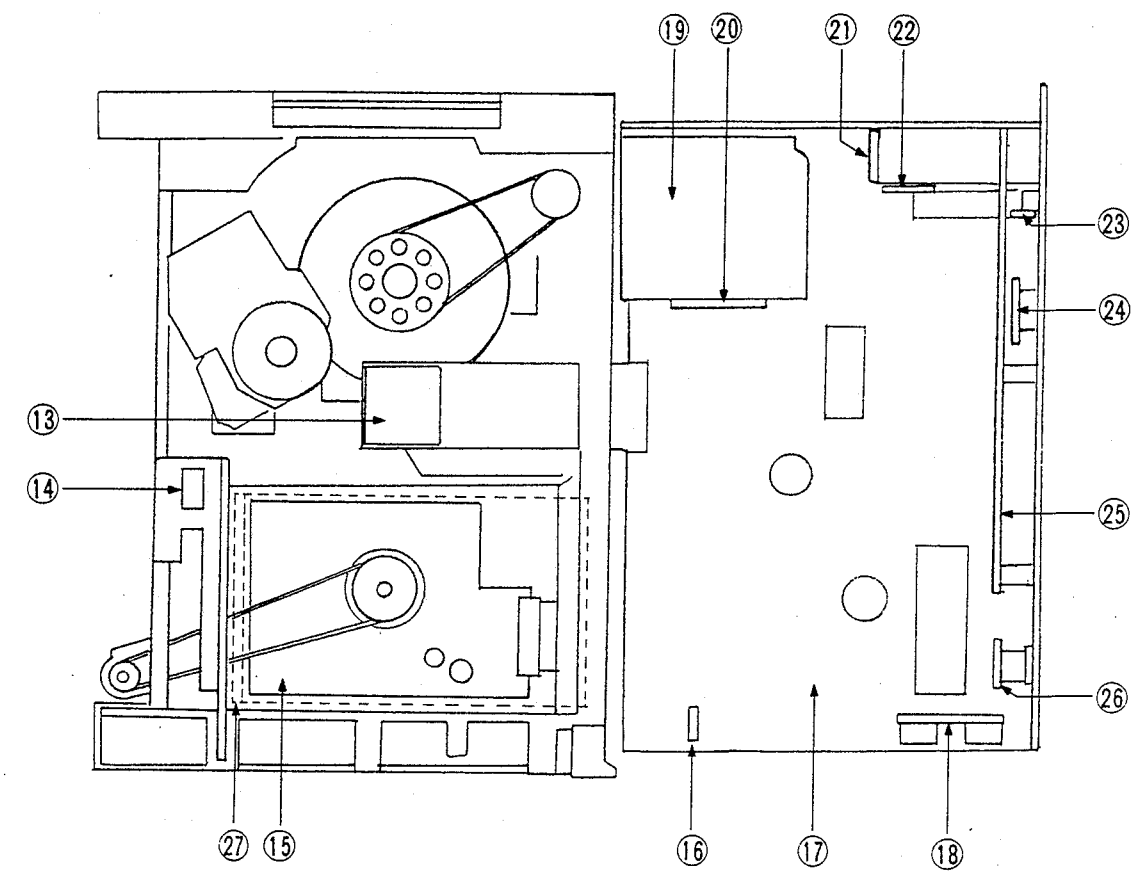
2-3-1. Location of the Printed Circuit Board

(TOP VIEW)



- | | |
|----------------|---------------|
| ① SY Board | ⑩ SV Board |
| ② SE-118 Board | ⑪ DU-58 Board |
| ③ SE-99 Board | ⑫ DUS-4 Board |
| ④ LED-69 Board | |
| ⑤ LED-70 Board | |
| ⑥ PC-22 Board | |
| ⑦ KY-147 Board | |
| ⑧ PC-22 Board | |
| ⑨ PD-44 Board | |

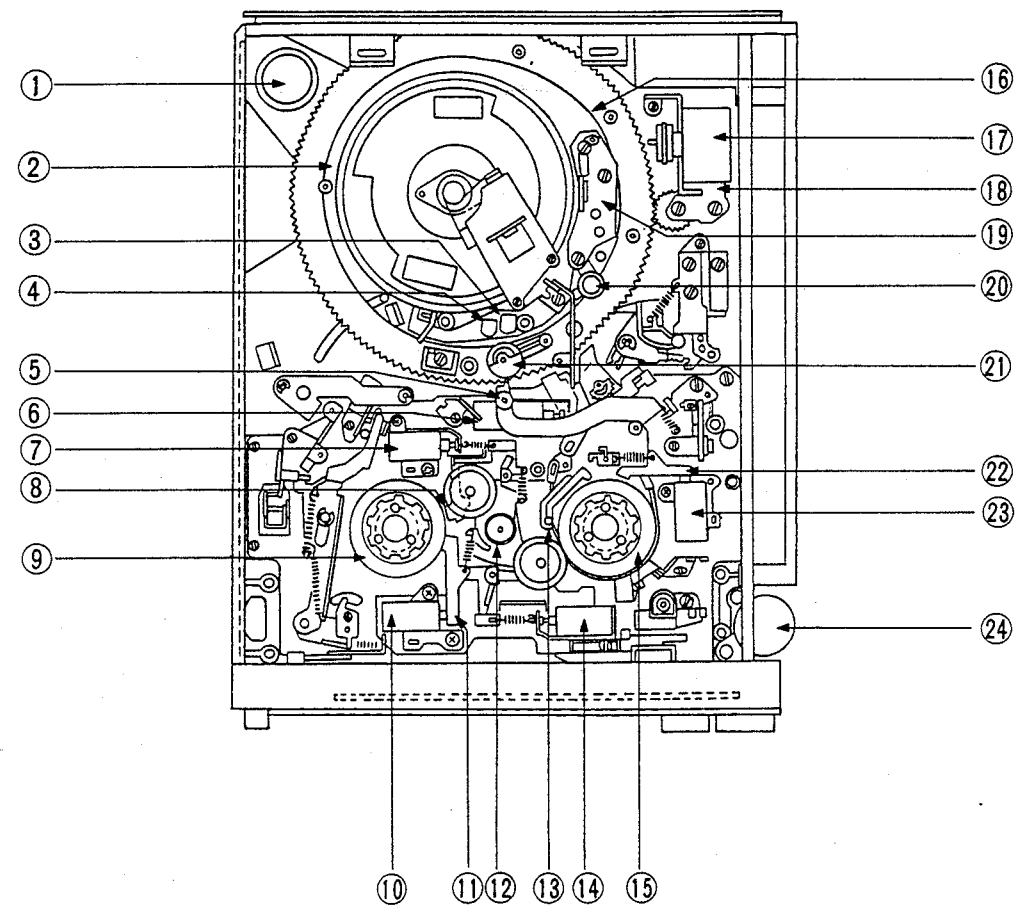
(BOTTOM VIEW)



- | | |
|-----------------------|--------------------------------|
| ⑬ RP Board | ⑳ RMD-2 Board (For UC, J only) |
| ⑭ BP-15 Board | ㉑ VR-85 Board |
| (UC: UP TO S/N 10700) | ㉒ CM-23 Board |
| (EK: UP TO S/N 10300) | ㉓ CP Board |
| ⑮ HN-102 Board | ㉔ TR-54 Board |
| ⑯ HP-45 Board | ㉕ BP-16 Board |
| ⑰ VA Board | (UC: S/N 10701 AND HIGHER) |
| ⑱ SW-296 Board | (EK: S/N 10301 AND HIGHER) |
| ㉒ CR Board | |
| ㉓ DUS-262 Board | |
| ㉔ CN-271 Board | |

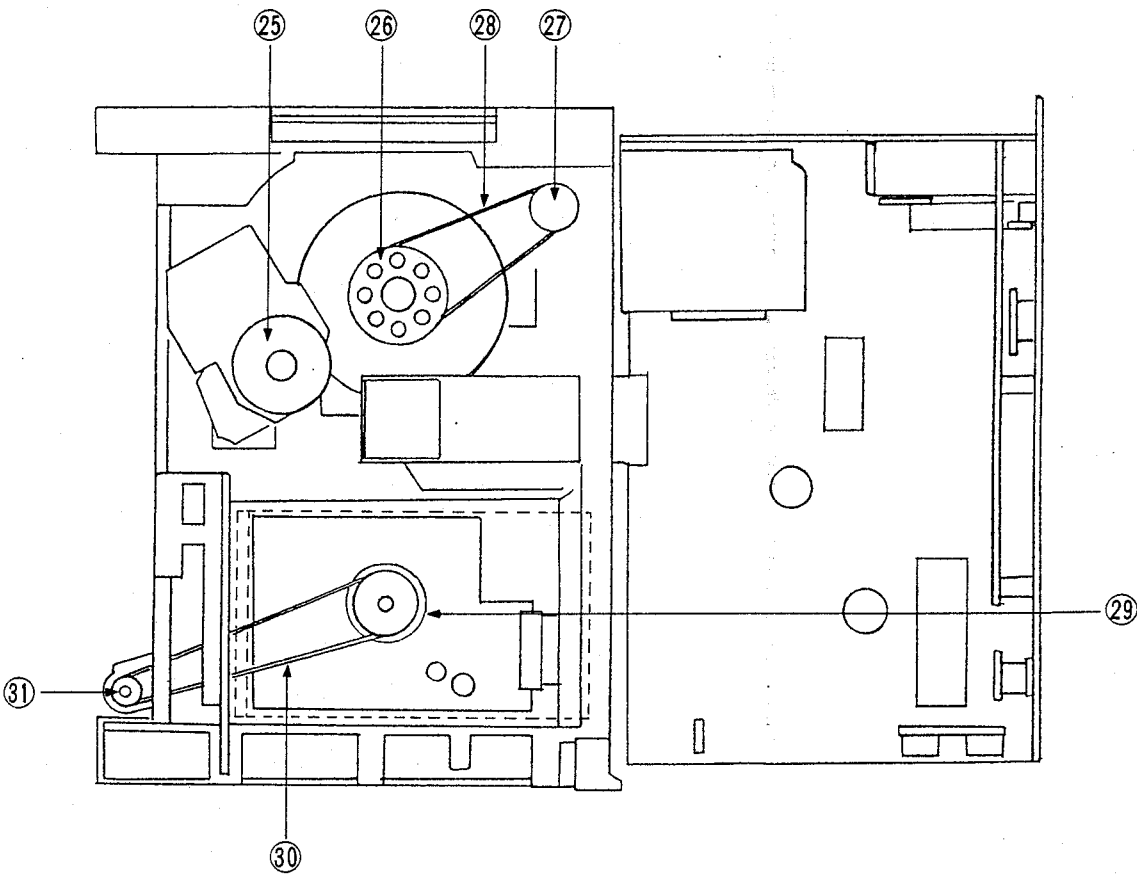
2-3-2. Location of the Mechanical Main Parts/Components

(TOP VIEW)



- | | |
|------------------------------|-------------------------|
| ① Drum Motor | ⑬ Supply Soft Brake |
| ② Drum | ⑭ Supply Idler Solenoid |
| ③ Full Erase Head | ⑮ Supply Reel Table |
| ④ Time Code Head | ⑯ Threading Ring |
| ⑤ Tension Regulator | ⑰ Threading Motor |
| ⑥ Tension Regulator Solenoid | ⑱ Threading Gear Box |
| ⑦ Take-up Idler Solenoid | ⑲ Audio/CTL Head |
| ⑧ Take-up Soft Brake | ⑳ Capstan |
| ⑨ Take-up Reel Table | ㉑ Pinch Roller |
| ⑩ Take-up Brake Solenoid | ㉒ Supply Main Brake |
| ⑪ Take-up Main Brake | ㉓ Supply Brake Solenoid |
| ⑫ Midway Pulley | ㉔ Reel Motor |

(BOTTOM VIEW)



- | |
|---------------------|
| ⑮ Capstan Motor |
| ⑯ Drum Pulley |
| ⑰ D Motor Pulley |
| ⑱ Drum Belt |
| ⑲ Relay Pulley |
| ⑳ Reel Belt |
| ㉑ Reel Motor Pulley |

2-4. PRINTED CIRCUIT BOARD

The VO-8800P circuit information is provided below.

| SYSTEM | BOARD | CIRCUIT FUNCTION |
|----------------|----------|---|
| VIDEO | VA-76 | Y/C Mix, Y Modulator/Demodulator, C RF PB, Video Output |
| | DUS-262 | Connection |
| | CR-35 | Chroma Processor |
| | RP-38A | REC/PB Amplifier |
| | CP-135 | Y/C Separator |
| AUDIO | CM-23 | Camera IN/OUT |
| | DU-58 | Audio R/P Head, Erase Head |
| | CP-135 | XLR IN/OUT Amplifier, Select Switch |
| | CM-23 | Camera MIC Input Select |
| | HP-45 | Phone Level |
| | SW-296 | Audio Level, Power Switch |
| | VA-76 | Select Switch |
| | SY-131A | REC/PB Amplifier, Dolby, Pilot Tone |
| SERVO | SV-108A | Erase/Bias Oscillator |
| | PC-22 | Drum/Capstan/Reel Servo |
| | DU-58 | Take-up/Supply Reel FG |
| | VR-85 | CTL R/P Head |
| | | Tracking VR |
| SYSTEM CONTROL | SY-131A | System Control |
| | SE-99 | Tape Top Detector |
| | SE-118 | Tape End Detector |
| | KY-147 | Function Key/LCD Display |
| | PD-44 | Solenoid Driver |
| | HN-102 | Connection |
| | LED-69 | Tape Top LED |
| | LED-70 | Tape End LED |
| | DUS-4 | Tension Regulator Switch |
| POWER | VA-76 | DC-DC Converter, Regulator |
| | TR-54 | SAVE +10 V |
| OTHER | PA-85 | CONFI RF PB Amplifier |
| | SY-131A | Time Code REC/PB Amplifier |
| | CM-23 | Camera Control |
| | CN-271 | Connection |
| | *1 BP-15 | Connection |
| | *2 BP-16 | Battery Case |

Note :

*1 marked board is for Serial No. up to 10300.

*2 marked board is for Serial No. 10301 and higher.

2-5. CONNECTION CONNECTOR

When external cables are connected to the various connectors on the connector panel during the maintenance, hardware (as stated below) or equivalents must be used.

| Panel Indication | Connection Connector |
|---|---------------------------------|
| VIDEO IN | 1-560-069-11 |
| VIDEO OUT | BNC, male |
| RF OUT | 1-506-305-00 F, male |
| AUDIO IN CH-1/L/DUB AUDIO IN CH-2/R | 1-508-084-00 XLR, 3P, male |
| AUDIO OUT CH-1/L (MONITOR) AUDIO OUT CH-2/R | 1-508-083-00 XLR, 3P, female |
| CAMERA | 1-508-929-00 PLUG, 14P, male |
| DC IN 12V | 1-508-362-00 XLR, 4P, female |

2-6. INPUT/OUTPUT SIGNAL OF THE CONNECTOR

INPUT

VIDEO IN : Composite signal
1.0 \pm 0.3Vp-p, sync negative
75 ohms, unbalanced

CAMERA IN : . Composite signal
1.0 \pm 0.3 Vp-p, sync negative
75 ohms, unbalanced
. Y/C separate signal
Y : 1.0 \pm 0.3 Vp-p,
sync negative, 75 ohms,
unbalanced
C : burst level
0.3 \pm 0.09 Vp-p,
without sync, 75 ohms,

AUDIO IN
CH-1/L/DUB, CH-2/R :
+4 dB/-20 dB/-60 dB switchable,
+4 dB : more than 10k ohms,
balanced
-20 dB/-60 dB :
more than 3k ohms,
balanced

CAMERA MIC IN :
+4 dB/-20 dB/-60dB switchable,
+4 dB : more than 10k ohms,
balanced
-20 dB/-60 dB :
more than 3k ohms,
balanced

OUTPUT

VIDEO OUT : Composite signal
1.0 \pm 0.2 Vp-p, sync negative
75 ohms, unbalanced

AUDIO OUT
CH-1/L(MONITOR), CH-2/R
: +4 dBm (at 600-ohm load)
balanced
HEADPHONES : -40 dB through -20 dB
(at 8-ohm load), adjustable

2-7. SELECT SWITCH SETTING

Along with the select switches on the control panel and the connector panel, the switches listed below are on the circuit boards. These switches must be set according to the operating conditions.

SY-131A Board

S1 : TEST MODE switch
ON : SELF DIAGNOSTIC mode
OFF : NORMAL mode
When the unit is shipped, this switch is set to the OFF position.

VA-76 Board

S1 : REC RF SELECT switch
ON : NORMAL RECORDING
OFF : IMPACT ERROR CHECK
When this switch is in the ON position, the video signals are recorded on a tape. When this switch is in the OFF position, the output signals from an impact error checker can be recorded. When the unit is shipped, this switch is set to the ON position.

2-8. SPARE PARTS

- (1) The Δ -marked components are critical to safety.

Replace only with same components as specified.

- (2) Replacement parts supplied from the Sony Parts Center will sometimes have a different shape from the original parts. This is due to "accommodating the improved parts and/or engineering changes" or "standardization of genuine parts".

This manual's exploded views and electrical spare parts list indicate the part numbers of "the standardized genuine parts at the present". Regarding engineering part changes in our engineering department, refer to Sony service bulletins and service manual supplements.

- (3) The parts marked with "s" in the SP column of the exploded views and electrical spare parts list are normally stocked for replacement purposes. The parts marked with "o" in the SP column are not normally required for routine service work. Orders for parts marked with "o" will be processed, but allow for additional delivery time.

2-9. NOTES WHEN SERVICING

2-9-1. When lifting the VTR with the Cabinet Removed

Since this VTR is designed as a portable VTR, and the frame is composed of aluminum for lightweight. When the set is lifted with the cabinet removed, do not press forcibly against the frame. If you do so, there is a danger that the frame will be bent.


2-9-2. Maintenance of the Printed Circuit Board in the Rotary Upper Drum

The Playback Pre-amplifier for the video signal (confidence), the PA-85 Board, is installed on the Rotary Upper Drum.

The dynamic balance of the entire Rotary Upper Drum is perfectly adjusted in this state.

Therefore, the PA-85 Board should not be removed from the Rotary Upper Drum nor should the electric parts on the printed board be installed or removed. (Never perform solder to remove or install.)

When the PA-85 Board fails, replace the entire Rotary Upper Drum. If the PA-85 Board is removed, the dynamic balance will be out of specification. Jitter will be increase, and the servo will be unstable.



2-10. MUTING OF THE TAPE BEGINNING SENSOR AND THE TAPE END SENSOR

Short between TP-4/SY-131A Board and GND (frame) with a short clip lead. The Tape Beginning Sensor and the Tape End Sensor stop their operation.

2-11. HOW TO OPERATE THE VTR WITHOUT INSERTING A CASSETTE TAPE

Perform Sec. 2-10, Muting of the Tape Beginning Sensor and the Tape End Sensor, before operating the following modes.

2-11-1. Threading

- (1) Turn the POWER ON.
- (2) Push down on the Cassette-in Switch with finger. (The threading operation starts.)
- (3) Remove the finger from the Cassette-in Switch after the rotation of the Threading Ring has fully stopped. (The VTR is put into the Threading-end mode.)

2-11-2. Unthreading (EJECT)

- (1) Depress the EJECT button until it locks.
- (2) Push down on the Cassette-in Switch with a finger. (The unthreading operation starts.)
- (3) When the Threading Ring has stopped its rotation, the Cassette-up Compartment rises automatically.

2-11-3. PLAY

- (1) Put the machine into the Threading-end state.
- (2) Push the PLAY button.

2-11-4. F.FWD

- (1) Put the machine into the Threading-end state.
- (2) Press the F.FWD button.

2-11-5. REW

- (1) Put the machine into the Threading-end state.
- (2) Press the REW button.

2-11-6. REC

- (1) Connect the video signal or a camera to the machine.
- (2) Put the machine into the Threading-end state.
- (3) Push the REC and PLAY buttons simultaneously.

2-11-7. STOP

- (1) Push the STOP button. (The cassette tape stops and remains in the Threading state.)

2-12. TAPE PROTECTION

The VTR has various detection circuits for tape protection. These detection circuits are described here for each modes.

(1) During threading

When the drum rotation stops for more than 2 seconds during the Threading mode, the DRUM ROTATE signal is not present. The protection circuit detects tape slack if it occurs. The SLACK LAMP lights, and the threading operation stops.

(2) During F.FWD

When the VTR is put into the following states during the F.FWD mode, the protection circuit detects tape slack if it occurs. The SLACK LAMP lights, and the F.FWD operation stops.

- When the take-up reel table rotation stops for more than 3.6 seconds and generates the REEL STOP signal.
- When the drum rotation stops for more than 2 seconds and does not generate the DRUM ROTATE signal.

(3) During REW

When the VTR is put into the following states during the REW mode, the protection circuit detects tape slack if it occurs. The SLACK LAMP lights, and the REW operation stops.

- . When the supply reel table rotation stops for more than 3.6 seconds and generates the REEL STOP signal.
- . When the drum rotation stops for more than 2 seconds and does not generate the DRUM ROTATION signal.

(4) During PLAY

When the VTR is put into the following states during the PLAY mode, the protection circuit detects tape slack if it occurs. The SLACK LAMP lights, and the PLAY operation stops.

- . When the take-up reel table rotation stops for more than 1.2 seconds and generates the REEL STOP signal.
- . When the drum rotation stops for more than 2 seconds and does not generate the DRUM ROTATION signal.

When put into the following states, the protection circuit detects tape slack if it occurs and releases the pressure of the pinch roller against the capstan shaft.

- . When the capstan motor rotates in the reverse direction (against the designated direction) for more than 2 seconds with the pinch roller pressed against the capstan shaft.

(For example, the capstan motor should rotate in the FWD direction in the PLAY mode. However, when it rotates in the REV direction, the tape protection circuit detects this.)

(5) During STOP in the STANDBY ON mode

When the VTR is put into the following state during STOP in the STANDBY ON mode, the protection circuit detects tape slack if it occurs. The SLACK LAMP lights.

- . When the drum rotation stops for more than 2 seconds and does not generate the DRUM ROTATE signal.

(6) During STOP in the STANDBY OFF mode

When the VTR is put into the following states during STOP in the STANDBY OFF mode, the protection circuit detects tape slack if it occurs. The SLACK LAMP lights.

- . When the capstan shaft rotates in the REV direction to release the tape tension with the pinch roller pressed against the capstan shaft, if the capstan shaft does not stop its rotation in 2 seconds, the pinch roller pressure against the capstan shaft is released.
- . When the tension arm does not return to the designated position in 700 msec. during the tape tension releasing operation.

(7) During FWD PAUSE

When the VTR is put into the following state during the FWD PAUSE mode, the protection circuit detects tape slack if it occurs. The SLACK LAMP lights, and the FWD PAUSE operation stops.

- . When the drum rotation stops for more than 2 seconds and does not generate the DRUM ROTATE signal.

(8) During REC PAUSE

When the VTR is put into the following states during the REC PAUSE mode, the protection circuit detects tape slack if it occurs. The SLACK LAMP lights, and the REC PAUSE operation stops.

- . When the drum rotation stops for more than 2 seconds and does not generate the DRUM ROTATE signal.
- . When the capstan shaft rotates in the REV direction to release the tape tension with the pinch roller pressed against the capstan shaft, if the capstan shaft does not stop its rotation in 2 seconds, the pinch roller pressure against the capstan shaft is released.

(9) During SHORT REW

When the VTR is put into the following states during the SHORT REW mode, the protection circuit detects tape slack if it occurs. The SLACK LAMP lights, and the SHORT REW operation stops.

- . When the drum rotation stops for more than 2 seconds and does not generate the DRUM ROTATE signal.
- . When the supply reel table rotation stops for more than 3.6 seconds and generates the REEL STOP signal.

(10) During BRAKE MODE

When the operation of (such as PLAY, F.FWD and REW) modes changes to the STOP mode, the reel table stops its rotation during this mode changing. This mode is called the BRAKE MODE.

When the VTR is put into the following states during the BRAKE MODE, the protection circuit detects tape slack if it occurs. The SLACK LAMP lights.

- . When the Take-up Reel Table doesn't stop for more than 2 seconds and doesn't generate the REEL STOP signal during the mode change from the PLAY or F.FWD mode to the STOP mode.

- . When the Supply Reel Table doesn't stop for more than 2 seconds and doesn't generate the REEL STOP signal during the mode change from the REW mode to the STOP mode.

- . When the drum rotation stops for more than 2 seconds and does not generate the DRUM ROTATE signal.

(11) During unthreading (take-up of the tape by the Take-up Reel Table)

- . This Unthreading mode shows the following unthreading operations,

When the condensation sensor on the lower drum detects condensation or when the drum does not rotate.

When the VTR is put into the following state during this operation, the protection circuit detects tape slack if it occurs. The SLACK LAMP lights, and the unthreading operation stops.

- . When the Take-up Reel Table rotation stops for more than 0.8 seconds and generates the REEL STOP signal.

(12) During unthreading (take-up of the tape by the Supply Reel Table)

This Unthreading mode shows the normal unthreading operation. When the VTR is put into the following states during this operation, the protection circuit detects tape slack if it occurs. The SLACK LAMP lights, and the unthreading operation stops.

- . When the Supply Reel Table rotation stops for more than 0.8 seconds and generates the REEL STOP signal.

- . When the drum rotation stops for more than 2 seconds and does not generate the DRUM ROTATE signal.

2-13. CASSETTE REMOVAL PROCEDURE WHEN NORMAL EJECTION IS NOT POSSIBLE

If the eject operation becomes impossible due to tape slack when the eject operation is attempted, cassette tape can be removed from the machine by the following procedures.

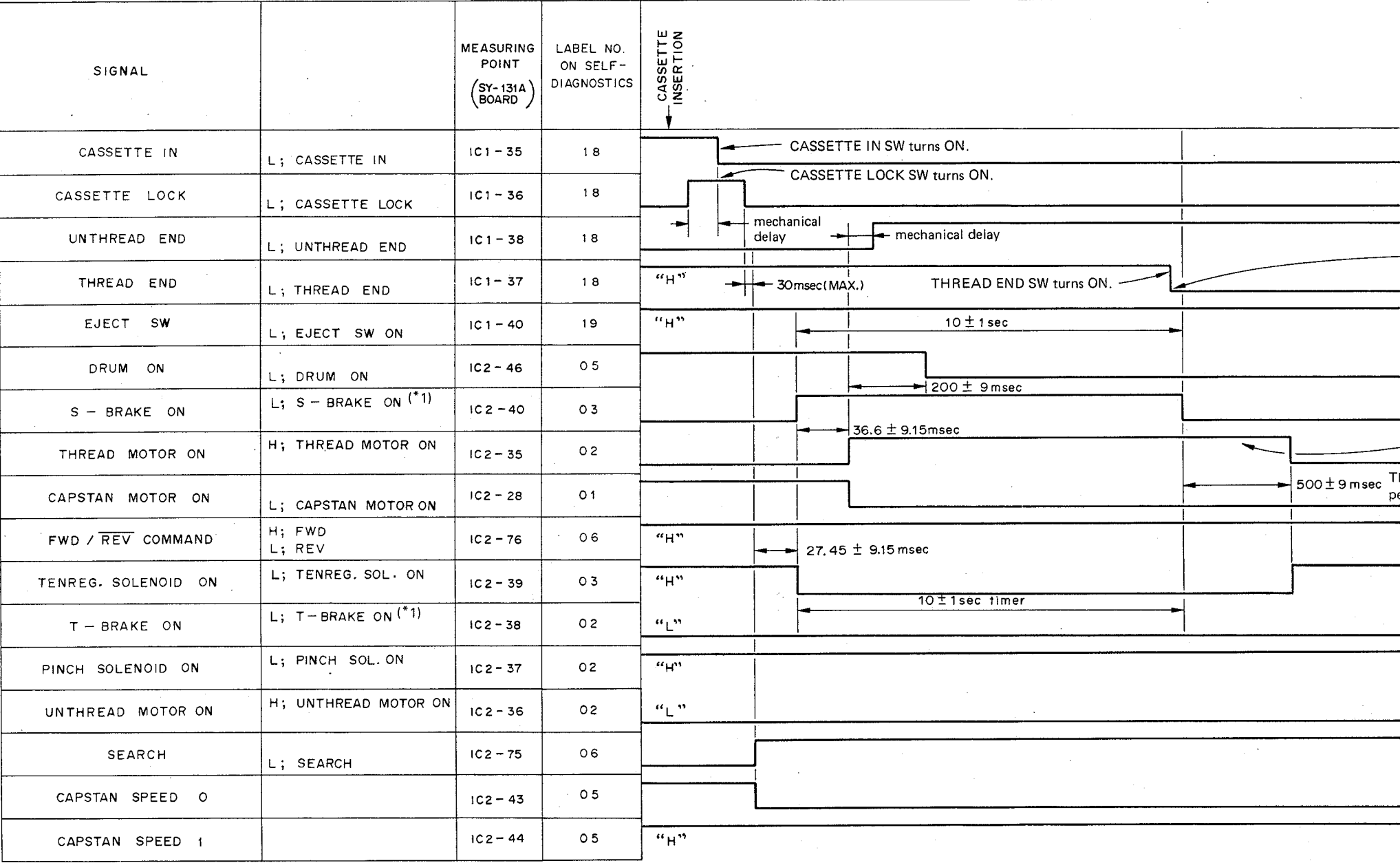
- (1) Remove the upper lid of Cassette-up Compartment.
- (2) Remove the upper case.
- (3) Push down on the EJECT key until it locks.
- (4) Turn the pulley of Threading Motor by hand so that the Threading Ring rotates into the unthreading mode. When the unthreading mode is completed, the lock of the Cassette-up Compartment is released and rises automatically. At this time, hold down the Cassette-up Compartment by hand so that it does not rise when the unthreading mode is completed and the tape is not damaged.
- (5) While holding the cassette tape lid so that it does not close, rise the Cassette-up Compartment slowly.
- (6) Remove the tape remaining in the machine carefully so that the tape is not damaged.

2-14. FIXTURE FOR ALIGNMENT

| Parts No. | Description | Application |
|-------------------|--|--|
| J-6001-820-A | Drum Eccentricity Gauge (3) | Upper drum eccentricity adjustment |
| J-6001-830-A | Drum Eccentricity Gauge (2) | |
| J-6001-840-A | Drum Eccentricity Gauge (1) | |
| J-6001-930-A | Drum Eccentricity Gauge (4) | |
| J-6002-270-A | Reel Table Torque Measurement Tape (40mm dia.) | Brake torque adjustment |
| J-6009-830-A | Flatness Plate | Audio/CTL, TC head slantness adjustment |
| J-6080-029-A | Small Mirror for Adjustment | Video tracking adjustment |
| J-6080-030-1 | Spare Mirror | |
| J-6130-010-A | Reel Table Height Check Base Jig | Reel table height adjustment |
| J-6130-020-A | Reel Table Height Check Jig | |
| J-6152-450-A | Clearance Check Gauge | Clearance check |
| J-6152-560-A | Tape Guide Slantness Check Tool | Tape guide, TC head slantness adjustment |
| J-6153-020-A | Dihedral Adjusting Eccentric Screwdriver | Video head dihedral adjustment |
| Y-2031-001-0 | Cleaning Fluid | Cleaning |
| 2-034-697-00 | Cleaning Piece | |
| 3-702-390-01 | Eccentric Screwdriver (4mm dia.) | Position adjustment |
| 7-700-736-01 | L-shaped Hexagonal Wrench (1.27mm) | Video tracking adjustment |
| 7-732-050-20 | Tension Scale (50g full scale) | Brake torque, tape tension adjustment |
| 7-732-050-30 | Tension Scale (100g full scale) | |
| 7-732-050-50 | Tension Scale (500g full scale) | |
| 8-960-020-62 | Alignment Tape, RR5-2SB PAL | Video adjustment |
| 8-960-036-02 | Alignment Tape, RR2-1SD PAL | Video tracking adjustment |
| 8-960-036-80 | Alignment Tape, RR5-1SD PAL | Servo, audio and video adjustment |
| 9-911-053-00 | Thickness Gauge | Clearance check |
| Standard Products | Head Demagnetizer(HE-4) | Head demagnetize |

2-15. TIMING CHART

CASSETTE IN-(THREADING)-STOP

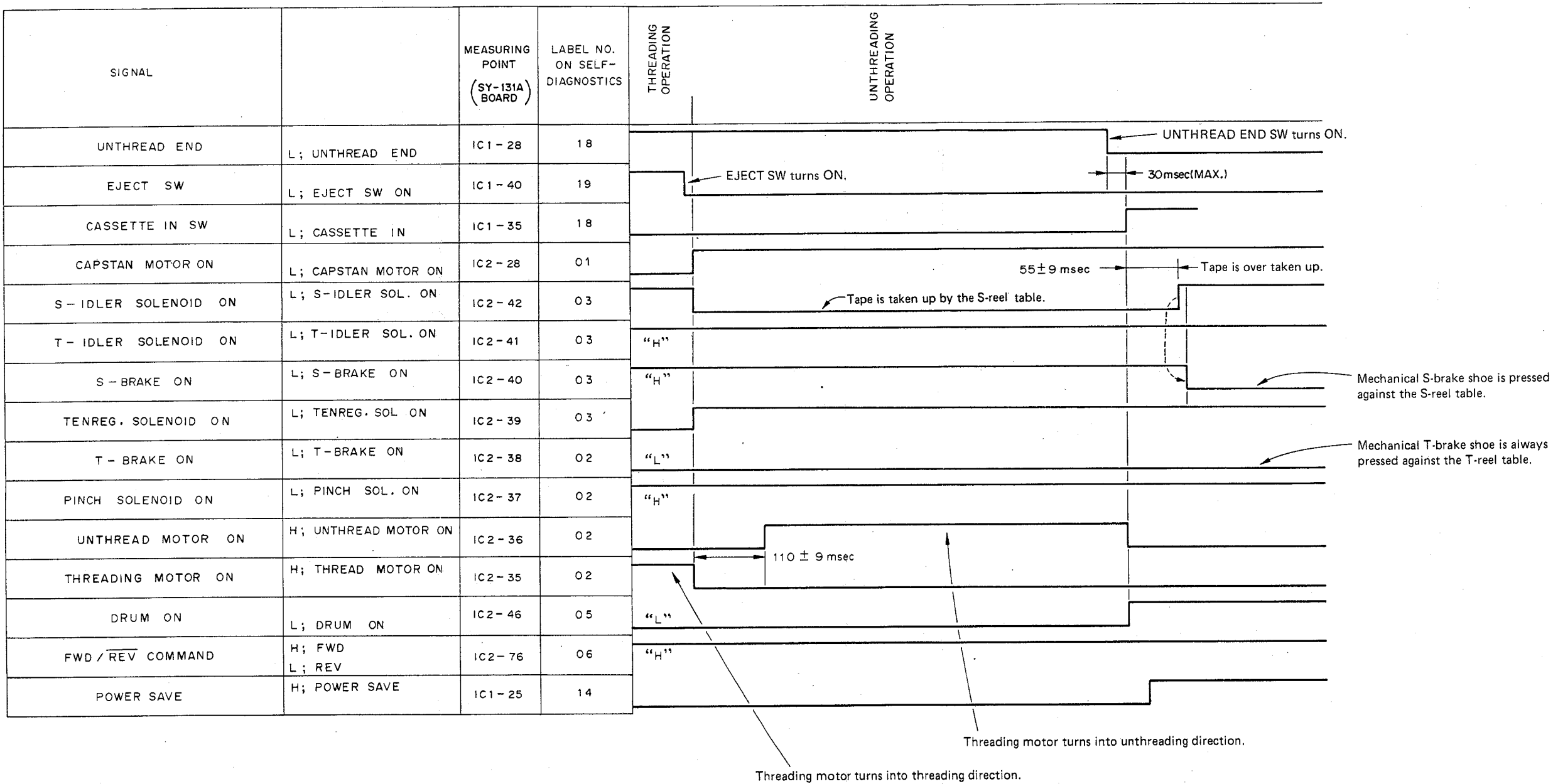


If the THREAD END switch is not turned into "L" level during 10±1 sec, the system control circuit detects as the threading trouble, and then the threading operation is stopped immediately.

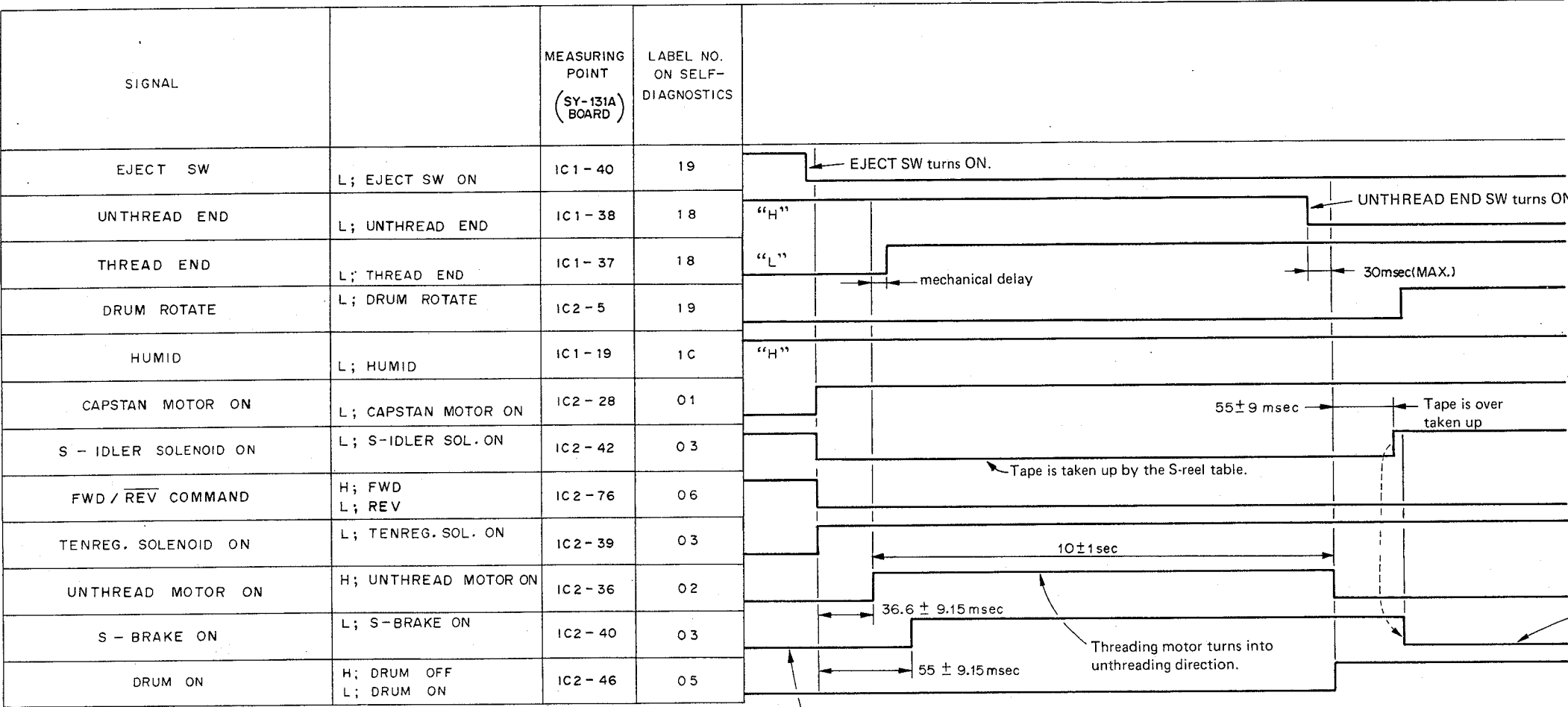
Threading motor turns into threading direction.
Threading ring is over turning in this period.

NOTE
*1: "S-BRAKE ON" or T-BRAKE ON" means the following state.
"S-BRAKE ON" or "T-BRAKE ON" signal turns "L"
↓
S-brake solenoid or T-brake solenoid is energized.
↓
Mechanical S-brake shoe or T-brake shoe is released from the each reel table.

EJECT OPERATION DURING THREADING



UNTHREADING OPERATION FROM STOP MODE (1)



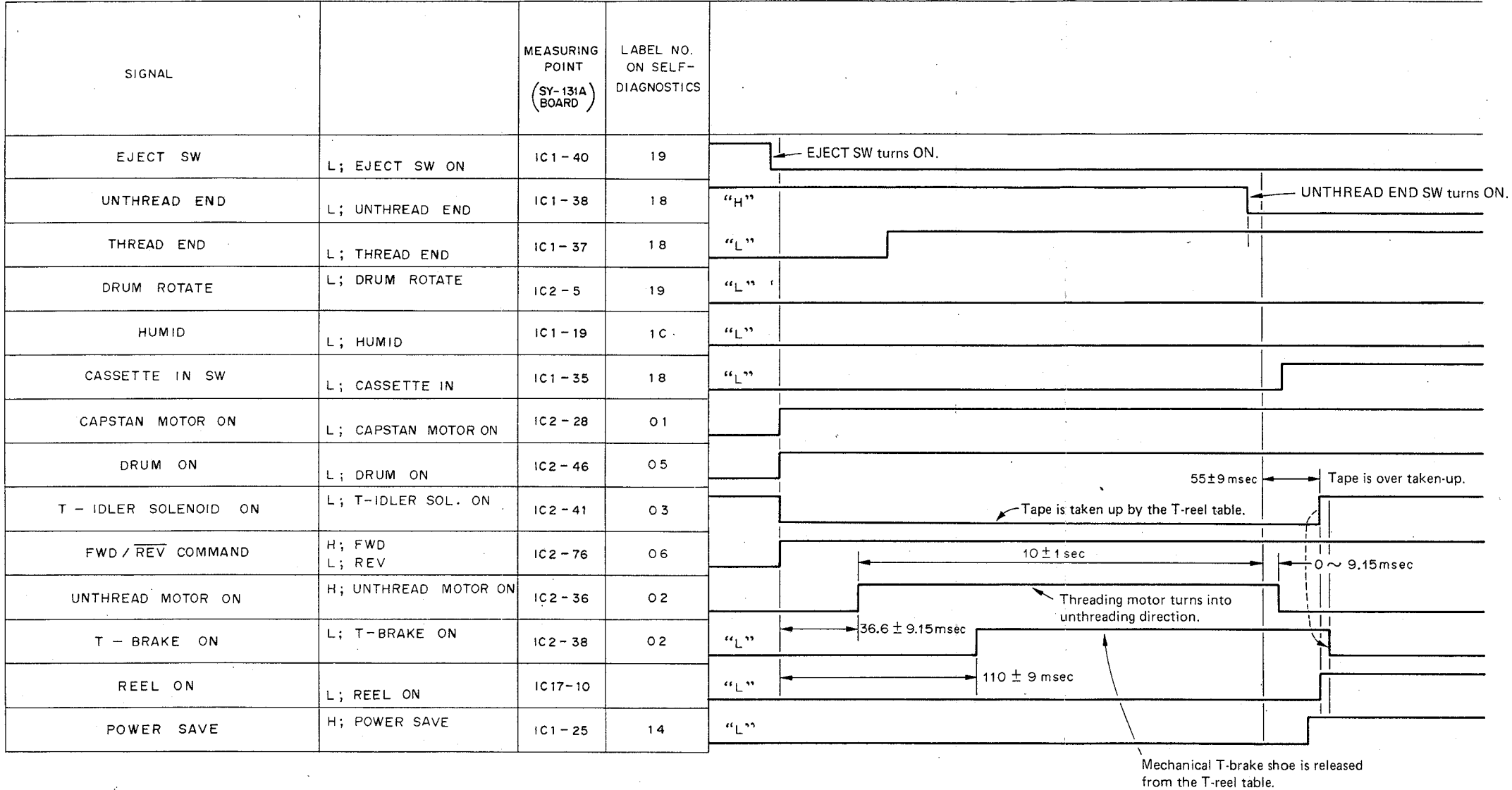
If the UNTHREAD END switch is not turned into "L" level during 10±1 sec, the system control circuit detects as the unthreading trouble, and the following signals change immediately.

- UNTHREAD MOTOR ON: H → L
- DRUM ON: L → H
- S-IDLER SOLENOID ON: H → L
- S-BRAKE ON: H → L
- FDW/REV COMMAND: L → H

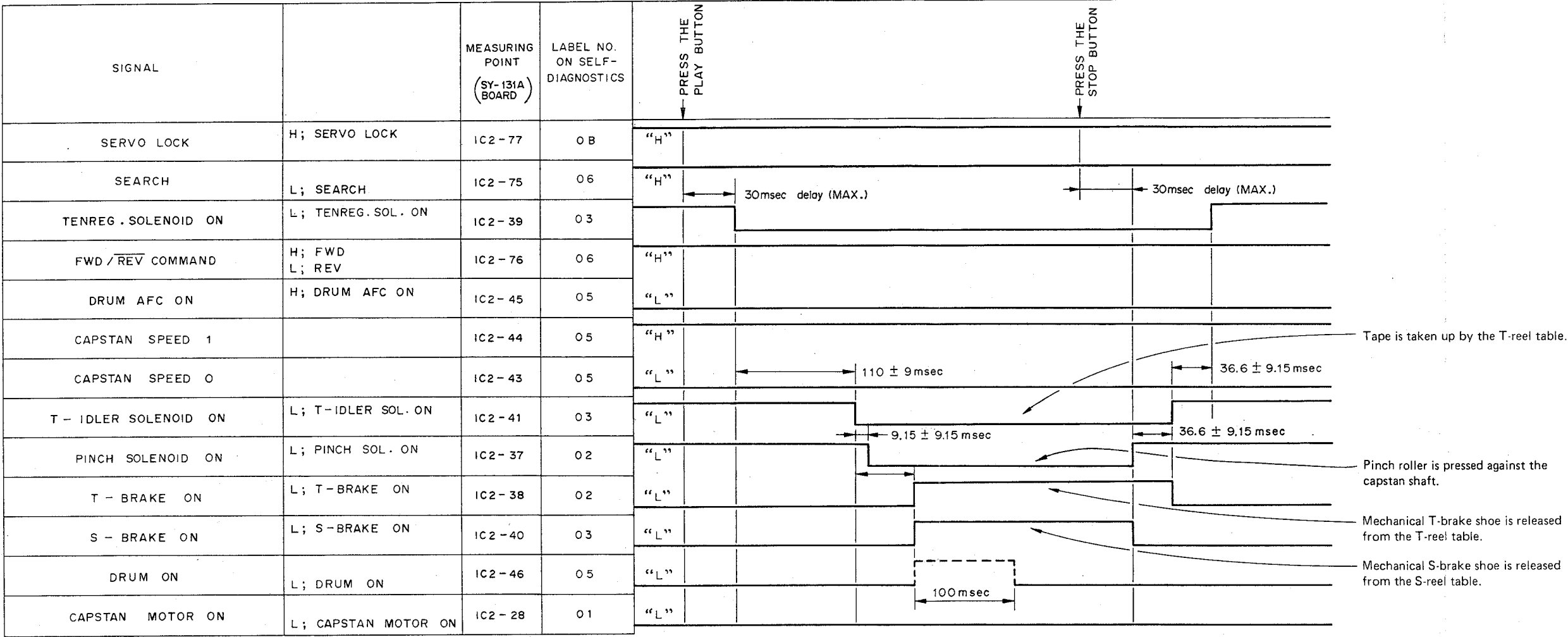
Mechanical S-brake shoe is pressed against the S-reel table.

Mechanical S-brake shoe is pressed against the S-reel table.

UNTHREADING OPERATION FROM STOP MODE (2)
(When DRUM ROTATE signal or HUMID signal is detected,
following operation is performed.)



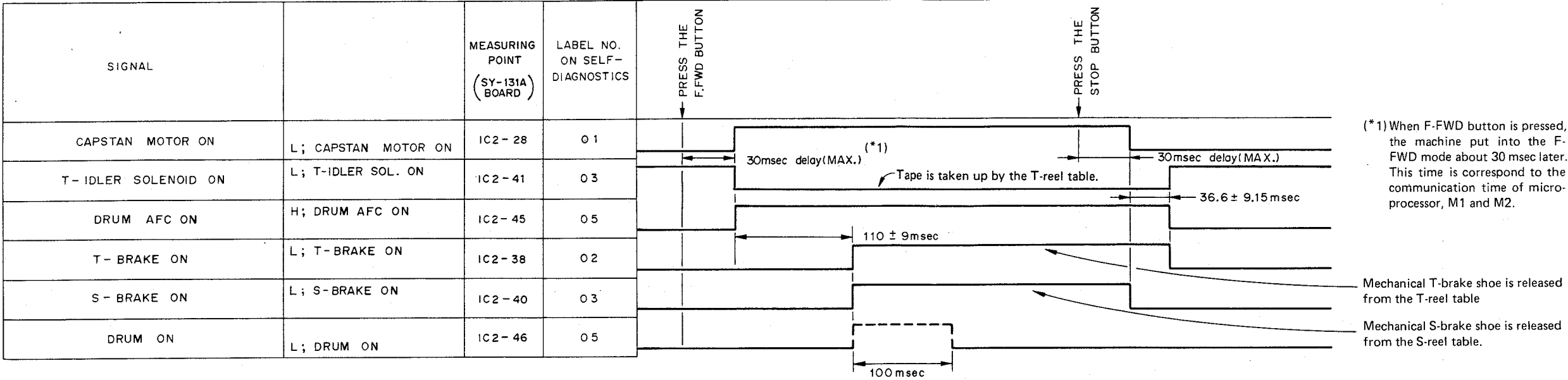
STOP - PLAY - STOP



STOP - REW - STOP

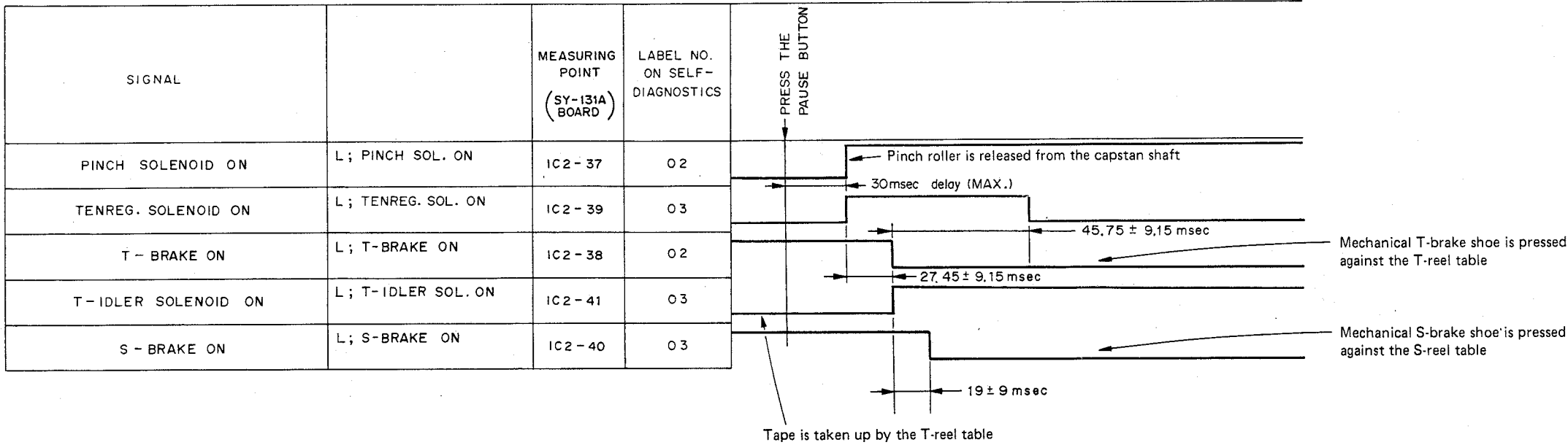
| SIGNAL | | MEASURING POINT (SY-131A BOARD) | LABEL NO. ON SELF-DIAGNOSTICS | <div>PRESS THE REW BUTTON</div> <div>PRESS THE STOP BUTTON</div> | |
|---------------------|---------------------|------------------------------------|----------------------------------|--|---|
| CAPSTAN MOTOR ON | L; CAPSTAN MOTOR ON | IC2-28 | 01 | <div>30msec delay(MAX.)</div> <div>Tape is taken up by the S-reel table.</div> <div>30msec delay(MAX.)</div> | |
| S-IDLER SOLENOID ON | L; S-IDLER SOL. ON | IC2-42 | 03 | | |
| DRUM AFC ON | H; DRUM AFC ON | IC2-45 | 05 | | |
| PINCH SOLENOID ON | L; PINCH SOL. ON | IC2-37 | 02 | "H" | <div>Mechanical T-brake shoe is released from the T-reel table.</div> |
| T-BRAKE ON | L; T-BRAKE ON | IC2-38 | 02 | | |
| S-BRAKE ON | L; S-BRAKE ON | IC2-40 | 03 | | |
| FWD/REV COMMAND | H; FWD L; REV | IC2-76 | 06 | | |
| DRUM ON | L; DRUM ON | IC2-46 | 05 | | <div>36.6 ± 9.15 msec</div> |
| CAPSTAN SPEED 1 | | IC2-44 | 05 | "H" | |
| CAPSTAN SPEED 0 | | IC2-43 | 05 | "L" | |
| SEARCH | L; SEARCH | IC2-75 | 06 | "H" | |

STOP - F·FWD - STOP

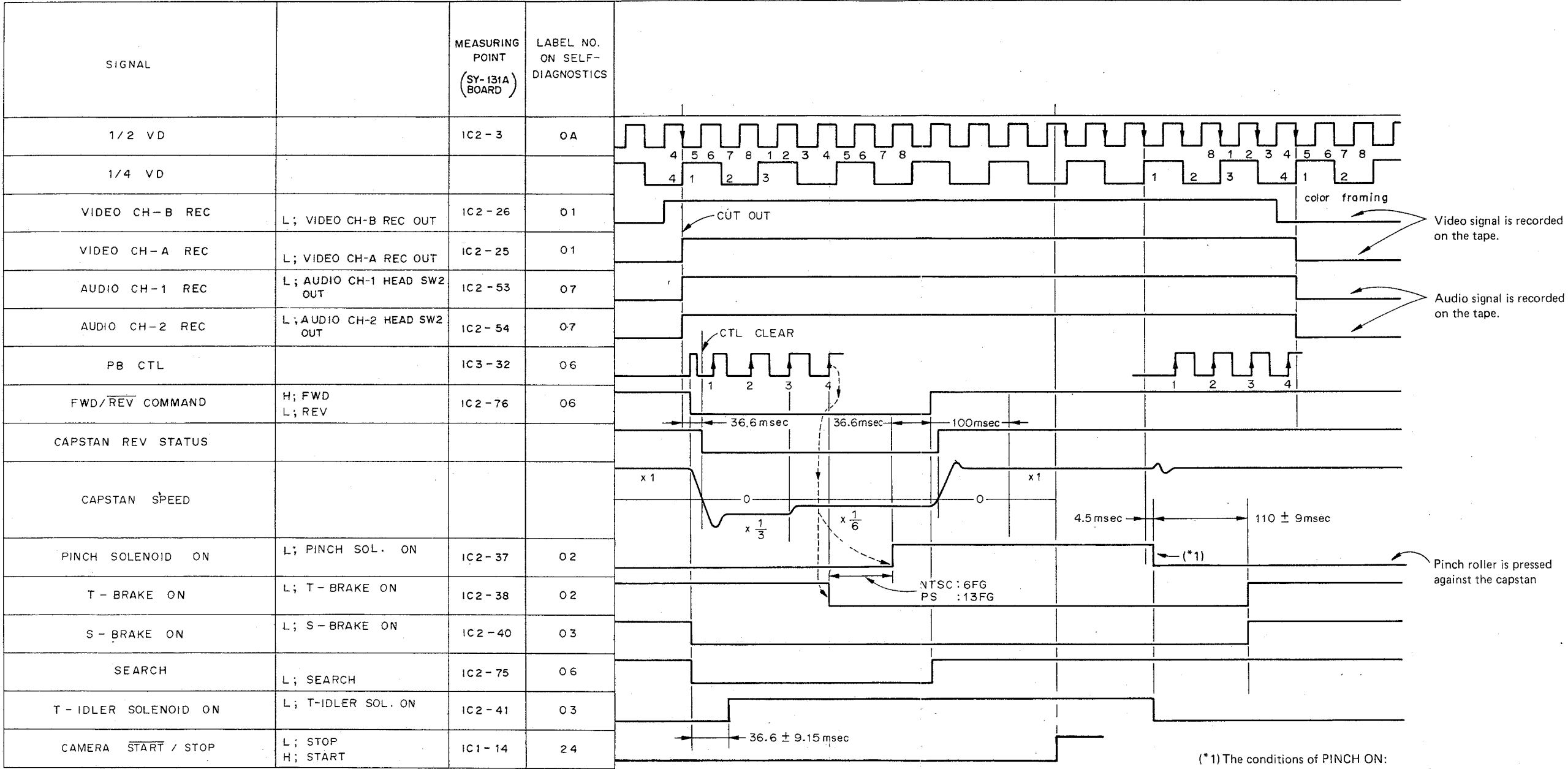


(*1) When F·FWD button is pressed, the machine put into the F·FWD mode about 30 msec later. This time is correspond to the communication time of micro-processor, M1 and M2.

PLAY - PLAY·PAUSE

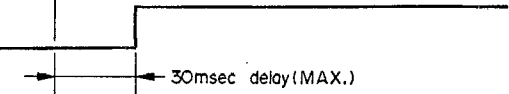


REC- REC / PAUSE - REC

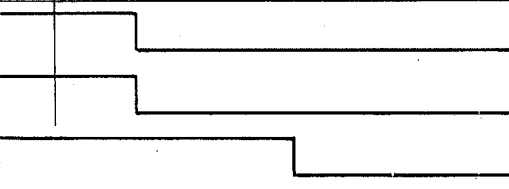


(*1) The conditions of PINCH ON:
SERVO LOCK is "H" and also VIDEO DET
(CAMERA VIDEO DET or LINE VIDEO DET)
is "H".

REC·FWD·PAUSE → STOP and
FWD·PAUSE → STOP

| SIGNAL | | MEASURING POINT (SY-131A BOARD) | LABEL NO. ON SELF- DIAGNOSTICS | PRESS THE STOP BUTTON |
|---------------------|--------------------|--|--------------------------------------|---|
| TENREG. SOLENOID ON | L; TENREG. SOL. ON | 1C2-39 | 03 |  |

STANDBY OFF → STANDBY ON
(DRUM STOP → DRUM ROTATE)

| SIGNAL | | MEASURING POINT (SY-131A BOARD) | LABEL NO. ON SELF- DIAGNOSTICS | PRESS THE KEY EXCEPT STOP KEY |
|------------------|---------------------|--|--------------------------------------|---|
| CAPSTAN MOTOR ON | L; CAPSTAN MOTOR ON | 1C2-28 | 01 |  |
| DRUM ON | L; DRUM ON | 1C2-46 | 05 | |
| DRUM ROTATE | L; DRUM ROTATE | 1C2-5 | 09 | |

1

2-16. SELF-DIAGNOSTIC FUNCTION

The VO-8800P has a micro-computer self-diagnostic function. This function is used as shown below.

- (1) Check that the dc power circuit for REG 5V, UNSW 5V, and EVER 5V are normal.
- (2) Set S1 on the SY-131A board to ON position in order to put the unit into the self-diagnostic mode.

- (3) Check that the function of the two left-hand digits of the LCD display is normal.


Method : Press the RESET button on the control panel repeatedly, and check that (0 to 9, A, b, C, d, E, and F) are displayed on the LCD display panel.

- (4) Find the signals to check in the self-diagnostic mode by using the timing chart.

- (5) Find the signals in the diagnostic table, and enter number or character which is listed in the column "LABEL" with the RESET button. The number or character will be displayed on the two right-hand digits of the LCD display.

- (6) Insert a cassette tape, and put the unit into the mode in which the trouble occurred.

- (7) "0"s and/or "1"s will be displayed on the four left-hand digits of the LCD display. When the displayed numbers are same with them which are listed in the diagnostic table, the operation of the unit is normal. When they are not, check the appropriate signal to repair.



| LABEL | | FIGURES OF DISPLAY | | | |
|-------|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 0 | 0 | VIDEO MUTE "0" (SY-131A IC2-50) | AUDIO MUTE "1" (SY-131A IC2-49) | AUDIO CH-2 PB/EE "0/1" (SY-131A IC2-48) | AUDIO CH-1 PB/EE "0/1" (SY-131A IC2-47) |
| 0 | 1 | CAPSTAN ON "0" (SY-131A IC2-28) | VIDEO PB/EE "1/0" (SY-131A IC2-27) | VIDEO CH-B REC "0" (SY-131A IC2-26) | VIDEO CH-A REC "0" (SY-131A IC2-25) |
| 0 | 2 | T-BRAKE SOL. ON "0" (SY-131A IC2-38) | PINCH SOL. ON "0" (SY-131A IC2-37) | UNTHREAD MOTOR ON "1" (SY-131A IC2-36) | THREAD MOTOR ON "1" (SY-131A IC2-35) |
| 0 | 3 | S-IDLER SOL. ON "0" (SY-131A IC2-42) | T-IDLER SOL. ON "0" (SY-131A IC2-41) | S BRAKE SOL. ON "0" (SY-131A IC2-40) | TENREG SOL. ON "0" (SY-131A IC2-39) |
| 0 | 5 | DRUM ON "0" (SY-131A IC2-46) | DRUM AFC ON "1" (SY-131A IC2-45) | CAPSTAN SPEED 1 (*NOTE-8) (SY-131A IC2-44) | CAPSTAN SPEED 0 (*NOTE-8) (SY-131A IC2-43) |
| 0 | 6 | FWD/REV COMMAND "1" (SY-131A IC2-76) | SEARCH "0" (SY-131A IC2-75) | PB (*NOTE-1) (SY-131A IC2-74) | IC2 READY "0" (SY-131A IC2-72) |
| 0 | 4 | | | PINCH ON/OFF "1" (SY-131A IC2-30) | DUB "0" (SY-131A IC2-29) |
| 0 | 7 | AUDIO CH-2 HEAD SW2 "1" (SY-131A IC2-54) | AUDIO CH-1 HEAD SW2 "1" (SY-131A IC2-53) | AUDIO CH-2 HEAD SW1 "0" (SY-131A IC2-52) | AUDIO CH-1 HEAD SW1 "0" (SY-131A IC2-51) |
| 0 | 8 | | AUDIO CH-1 BIAS ON "0" (SY-131A IC2-57) | AUDIO CH-2 REC MUTE "1" (SY-131A IC2-56) | AUDIO CH-1 REC MUTE "1" (SY-131A IC2-55) |

IC2/SY-131A OUTPUT DATA

NOTE-1, "L:PB" signal goes to low level in the FF, REW, FWD, REC/FWD, and STANDBY during the STOP modes.

| | LABEL | | FIGURES OF DISPLAY | | | | |
|-------------------------|-------|---|---|--|--|---|--|
| | 1 | 2 | 3 | 4 | 5 | 6 | |
| IC2/SY-131A INPUT DATA | 0 | d | TAPE PROTECTION "1" (SY-131A) IC2-20 | TEST 2 (MEMORY) "0" (SY-131A) IC2-79 | SELF CHECK MODE "0" (SY-131A) IC2-18 | AUTO STOP: OFF (* NOTE-2) (SY-131A) "0" (IC2-17) | NOTE-2, When pin 17 of IC2 is "L" level, AUTO STOP (TAPE PROTECTION) mode does not operate. |
| | 0 | A | TEN-REG SW ON "0" (SY-131A) IC2-4 | 1/2 VD (SY-131A) IC2-3 | COMMUNICATION FIRST FLAG "1" (SY-131A) IC2-2 | BACK SPACE EDIT: START (* NOTE-3) (SY-131A) "1" (IC2-1) | NOTE-3, When the unit is put into the REC/FWD mode from the REC/PAUSE mode, this signal informs mode change from IC1 to IC2. |
| | 0 | 9 | REEL STOP STATUS "1" (SY-131A) IC2-8 | CAPSTAN FWD/REV "1/0" (SY-131A) IC2-7 | CAPSTAN ROTATE "1" (SY-131A) IC2-6 | DRUM ROTATE "0" (SY-131A) IC2-5 | |
| | 0 | b | SERVO REC "0" (SY-131A) IC2-80 | CAMERA VIDEO DET. "0" (SY-131A) IC2-79 | LINE VIDEO DET. "0" (SY-131A) IC2-78 | SERVO LOCK "1" (SY-131A) IC2-77 | |
| | 0 | c | TEN. REG. OFF (SY-131A) IC2-24 | | PINCH ON STATUS "1" (SY-131A) IC2-22 | CAPSTAN LOCK "0" (SY-131A) IC2-21 | |
| | 0 | E | ← CTL COUNT DURING BACK SPACE EDITING → | | | | |
| | 0 | F | ← CTL COUNT DURING BACK SPACE EDITING → | | | | |
| IC1/SY-131A OUTPUT DATA | 1 | 0 | 8P MONITOR DETECT (* NOTE-4) (SY-131A) "1" (IC1-80) | LINE SELECT "1" (SY-131A) IC1-79 | T-LED ON "0" (SY-131A) IC1-78 | S-LED ON "0" (SY-131A) IC1-77 | NOTE-4, When the connection cable (VMC-1MQ) is connected between pin 14 and pin 8, the number "1" is displayed. |
| | 1 | 1 | CHARA GEN. MUTE "1" (SY-131A) IC1-8 | | REC TALLY "0" (SY-131A) IC1-6 | CAMERA RESET "1" (SY-131A) IC1-5 | |
| | 1 | 2 | RF MUTE "0" (SY-131A) IC1-70 | | | | |
| | 1 | 3 | REC FWD "1" (SY-131A) IC1-32 | ALARM TONE "0" (SY-131A) IC1-31 | BATTERY ALARM "0" (SY-131A) IC1-30 | FF/REW "1" (SY-131A) IC1-29 | |
| | 1 | 4 | | CONF EE "1" (SY-131A) IC1-27 | POWER CONT "1" (SY-131A) IC1-26 | POWER SAVE "1" (SY-131A) IC1-25 | |
| | 1 | 5 | | | | | |

| | LABEL | | FIGURES OF DISPLAY | | | | |
|------------------------|-------|---|---|--|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | |
| OUTPUT DATA | 1 | 6 | COMMUNICATION SELECT (SY-131A) IC1-76 | COMMUNICATION SELECT (SY-131A) IC1-75 | | COMMUNICATION FIRST FLAG "1" (SY-131A) IC1-72 | |
| | 1 | 7 | BACK SPACE EDIT START (*NOTE-3) (SY-131A) "1" IC1-4 | | | TAPE FWD/REV (IN) "1/0" (SY-131A) IC1-2 | COMMUNICATION READY (IN) "0" (SY-131A) IC1-1 |
| IC1/SY-131A INPUT DATA | 1 | 8 | UNTHREAD END "0" (SY-131A) IC1-38 | THREAD END "0" (SY-131A) IC1-37 | CASSETTE LOCK "0" (SY-131A) IC1-36 | CASSETTE IN "0" (SY-131A) IC1-35 | |
| | 1 | 9 | TAPE END (SY-131A) IC1-42 | TAPE TOP (SY-131A) IC1-41 | EJECT SW "0" (SY-131A) IC1-40 | MISS REC SW "0" (SY-131A) IC1-39 | |
| | 1 | A | NTSC/PAL "1/0" (SY-131A) IC1-46 | LOCAL INHIBIT (*NOTE-5) (SY-131A) "0" IC1-45 | CHARA GEN. SW "1" (SY-131A) IC1-44 | TAPE BEFORE END "0" (SY-131A) IC1-43 | NOTE - 5, (H: RM-690 + VO-8800 KEY FUNCTION) (L: RM-690 + STOP KEY and EJECT SW) |
| | 1 | b | LINE VIDEO DETECT "0" (SY-131A) IC1-50 | CAMERA VIDEO DETECT "0" (SY-131A) IC1-49 | CAMERA/LINE SW "1/0" (SY-131A) IC1-48 | CAMERA 1/2 SW "1/0" (SY-131A) IC1-47 | |
| | 1 | C | POWER OFF "0" (SY-131A) IC1-20 | HUMID DETECT (SY-131A) IC1-19 | BATTERY DETECT (SY-131A) IC1-18 | BATTERY DISP. SW. "0" (SY-131A) IC1-17 | |
| | 1 | d | | | | | |
| | 1 | E | BKU CONNECTED "0" (SY-131A) IC1-58 | | EXPANDER CS (OUT) (SY-131A) IC1-56 | EXPANDER PROG. (OUT) (SY-131A) IC1-55 | |
| SOFT STATUS | 1 | F | ← * NOTE-6 → | | | | |
| | 2 | 0 | HUMID "1" | SLACK "1" | | | |
| | 2 | 1 | TAPE END "1" | TAPE TOP "1" | BATTERY END "1" | BATTERY BEFORE END "1" | |

| | LABEL | | FIGURES OF DISPLAY | | | | |
|-------|-------|---|--------------------|------------------|----------------------------|------------------------------|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | |
| INPUT | 2 | 3 | DUB KEY "0" | REC KEY "0" | | PAUSE KEY "0" | |
| | 2 | 4 | | RESET KEY "0" | CAMERA START "0" | EJECT KEY "0" | |
| | 2 | 5 | | | REEL DET "1" (※ NOTE-7) | DRUM ROT DET "1" (NOTE-7) | NOTE-7, This signal is the slack signal that is detected in IC1 on the SY-131A board. |
| | 2 | 2 | FF KEY "0" | PLAY KEY "0" | REW KEY "0" | STOP KEY "0" | |

NOTE-6;

| DISPLAYED DATA | CAUSE OF SLACK |
|------------------------|--|
| IF : 0000 | Normal |
| IF : 0001 | The UNTHREAD END signal does not generate after 10 seconds are passed in the unloading mode, or the THREAD END signal does not generate after 10 seconds are passed in the threading mode. |
| IF : 0011 | The capstan does not rotate reversely. |
| IF : 1001 | The REEL STOP signal does not generate after 2 seconds are passed. The TEN. REG. switch does not turn on in the tape tension release mode. |
| IF : 1010 IF : 1011 | Reel rotation is NG. |

NOTE-8;

| SPEED | SPEED 0 | SPEED 1 |
|-------|---------|---------|
| x1 | (1) | (0) |
| x 1/3 | (0) | (1) |
| x 1/6 | (0) | (0) |

SECTION 3

PERIODIC CHECK AND MAINTENANCE

It is recommended that the following periodic check and maintenance schedule be employed in order to obtain maximum performance and longer tape life from VO-8800P.

3-1. MAINTENANCE AFTER REPAIRS

Perform the following maintenance after repair regardless the operating hours of the machine.

- (1) Cleaning of the video heads and confidence heads
 - . Press the cleaning piece moistened with the cleaning fluid and turn the drum slowly with hand, cleaning the heads.
(Never turn the motor by the electric power for the cleaning.)
 - . Never move the cleaning piece in the vertical direction of head tip in the cleaning. It tends to damage the video head tips.
- (2) Cleaning of tape running system
 - . Wipe the tape bearing surfaces (of the tape guide, drum, capstan, and pinch roller) with cleaning piece saturated with the cleaning fluid.
- (3) Cleaning of drive system
 - . Wipe the drive system (such as belt, idler, and reel table surface) with cleaning piece saturated with the cleaning fluid.

3-2. PERIODIC CHECK

Perform the maintenance checks described separately in accordance with the operational hours of the machine.

3-3. HOURS METER

VO-8800P has an hours meter on the chassis for the periodic check and maintenance. It is recommended that the hours meter is used as a tool for determining the periodic check. When the hours meter indicates the maximum value, 1000 hours, the hours meter must be replaced with a new one.

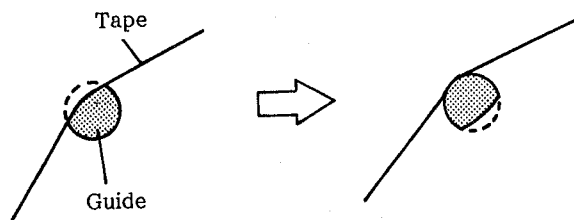
3-4. OTHERS

- (1) Sony oil
 - . Be sure to use the Sony oil as the lubrication oil. (If oil other than the Sony oil is used, various troubles due to different viscosity tends to be caused.)
Sony oil: Part No. 7-661-018-01
 - . Use the Sony oil in which dust or other foreign material have not mixed for lubricating the bearing. (If foreign material is in the oil, wear or burning of the bearing tends to be caused.)

○ : Cleaning ◆ : Replacement ◇ : Check (Adjustment) □ : Smear grease ◎ : Rotation

| Item | Operating hours(H) | | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 3500 | 4000 | 4500 | 5000 | Reference | Reference of Exploded View |
|-----------------------------------|--|--|-----|------|------|------|------|------|------|------|------|------|------------|----------------------------|
| | Part No | | | | | | | | | | | | | |
| Tape path block | — | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | — | — |
| Upper drum ass'y. (DUR-50-R) | A-6709-665-A | | ○ | ◆ | ○ | ◆ | ○ | — | ○ | ◆ | ○ | ◆ | 4-1 | 16-15 16-16 |
| Head drum ass'y. (DUH-50A-R) | A-6709-664-A | | ○ | ○ | ○ | ○ | ○ | ◆ | ○ | ○ | ○ | ○ | 4-2 | 16-15 16-16 |
| Audio/CTL head (EPS264-5803) | 8-825-578-22 | | ○ | ○ | ○ | ○ | ○ | ◆ | ○ | ○ | ○ | ○ | 4-7 | 16-16 |
| Time code head (PP295-58) | 8-825-771-31 | | ○ | ○ | ○ | ○ | ○ | ◆ | ○ | ○ | ○ | ○ | 4-6 | 16-15 16-16 |
| Full erase head | 8-825-544-20 | | ○ | ○ | ○ | ○ | ○ | ◆ | ○ | ○ | ○ | ○ | 4-5 | 16-15 16-16 |
| Slip ring ass'y | A-4926-251-A | | — | — | — | — | — | ◆ | — | — | — | — | — | 16-15 16-16 |
| Brush | 3-641-645-00 | | — | — | — | — | — | ◆ | — | — | — | — | — | 16-15 16-16 |
| Pinch roller ass'y | X-3685-804-1 | | ○ | ◆ | ○ | ◆ | ○ | ◆ | ○ | ◆ | ○ | ◆ | 4-9 | 16-14 |
| Capstan motor (BHF-1913B) | 8-835-351-01 | | — | — | — | — | — | ◆ | — | — | — | — | 4-3 | 16-15 16-16 |
| Drum driving motor (MNR-2900B) | 8-835-235-01 | | — | — | — | — | ◆ | — | — | — | — | ◆ | 4-4 | 16-9 16-10 |
| Reel driving motor (MNR-7400A) | 8-835-123-01 | | — | — | — | — | ◆ | — | — | — | — | ◆ | 4-16 | 16-9 16-10 |
| Threading motor | 1-541-163-51 | | — | — | — | — | — | ◆ | — | — | — | — | 4-15 | 16-12 |
| Tape guide, TG-1 | 3-687-968-01 | | ○ | ○ | ○ | ○ | ○ | ◎ | ○ | ○ | ○ | ○ | — | 16-15 16-16 |
| Tape guide, TG-3 | 3-686-020-03 | | ○ | ○ | ○ | ○ | ○ | ◎ | ○ | ○ | ○ | ○ | — | 16-15 16-16 |
| Tape guide, TG-4 | 3-685-925-01 | | ○ | ○ | ○ | ○ | ○ | ◎ | ○ | ○ | ○ | ○ | — | 16-15 16-16 |
| * Reel belt | 3-685-803-02 | | ○ | ○ | ○ | ◆ | ○ | ○ | ○ | ◆ | ○ | ○ | — | 16-9 16-10 |
| * Drum belt | 3-686-017-02 | | ○ | ○ | ○ | ◆ | ○ | ○ | ○ | ◆ | ○ | ○ | — | 16-9 16-10 |
| * Threading belt | 3-686-010-03 | | ○ | ○ | ○ | ◆ | ○ | ○ | ○ | ◆ | ○ | ○ | — | 16-12 |
| Reel table ass'y | A-6739-034-A | | ○ | ○ | ○ | ○ | ○ | ◆ | ○ | ○ | ○ | ○ | — | 16-3 16-4 16-5 16-6 |
| Idler tire | 3-687-902-01 | | ○ | ◆ | ○ | ◆ | ○ | — | ○ | ◆ | ○ | ◆ | — | 16-7 16-8 |
| Idler tire ass'y | A-6740-084-A | | — | — | — | — | — | ◆ | — | — | — | — | — | 16-7 16-8 |
| * Tension regulator band ass'y | X-3685-814-4 | | — | — | — | ◆ | — | — | — | ◆ | — | — | — | 16-5 16-6 |
| * brake arm ass'y | X-3685-819-2 | | — | — | — | ◆ | — | — | — | ◆ | — | — | — | 16-3 16-4 16-5 16-6 |
| * T soft brake ass'y | X-3685-818-2 | | — | — | — | ◆ | — | — | — | ◆ | — | — | — | 16-3 16-4 |
| * S soft brake ass'y | X-3685-817-2 | | — | — | — | ◆ | — | — | — | ◆ | — | — | — | 16-5 16-6 |
| Ring roller ass'y | X-3685-801-1 X-3685-802-1 X-3685-803-1 | | — | □ | — | □ | — | □ | — | □ | — | □ | — | 16-14 |
| Check the PLAY back tension | — | | — | ◇ | — | ◇ | — | ◇ | — | ◇ | — | ◇ | 6-3 | — |
| Check the brake torque | — | | — | — | — | ◇ | — | — | — | ◇ | — | — | 6-1 6-2 | — |

- (NOTE 1) The Slip Ring Ass'y and Brush are included in the Head Drum Ass'y. When replacing the Head Drum Ass'y, the Slip Ring Ass'y and Brush is replaced together.
- (NOTE 2) Be sure to clean the tape run area in repairing.
- (NOTE 3) Operating hours (such as replacement, check and so on) will be different in operating environment.
- (NOTE 4) We recommend you to replace early the ✕ marked parts for maintenance of the best condition.
- (NOTE 5) Ⓢ (Rotation) marked item means to turn the tape guide by hand so that the worn portion of the tape guide doesn't touch a tape. Turn the tape guide by 180°.



SECTION 4

REPLACEMENT OF MAJOR PARTS

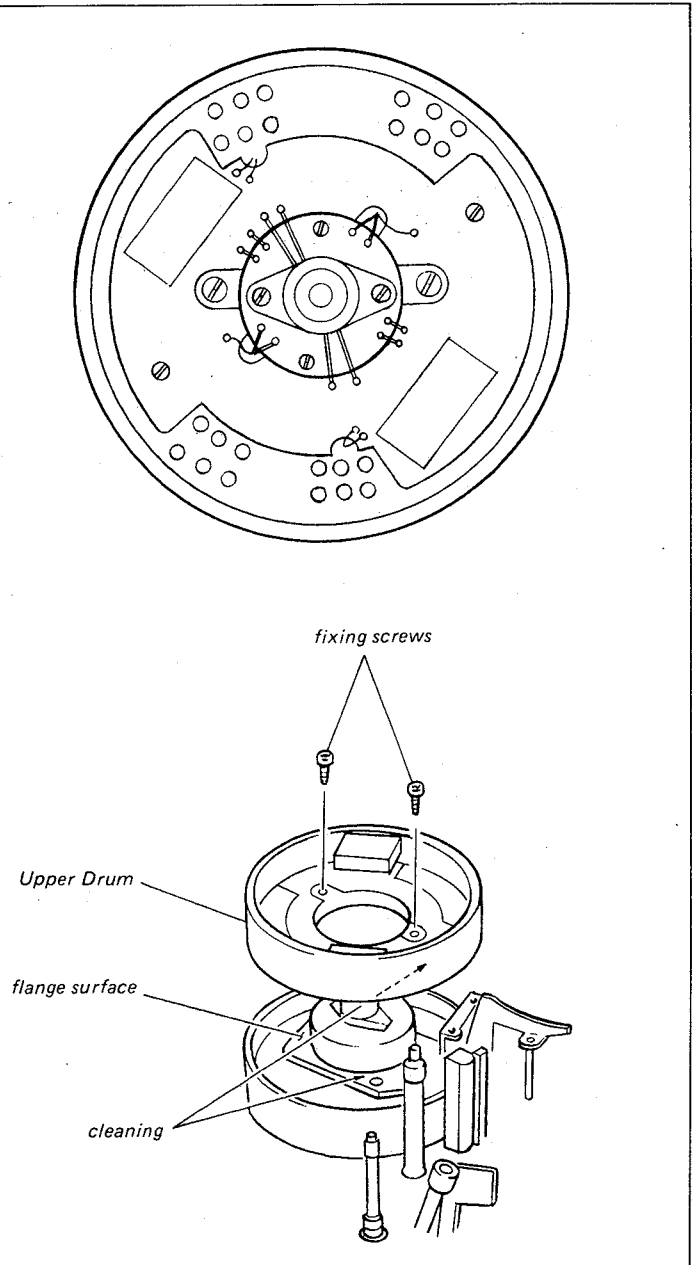
4-1. REPLACEMENT OF THE ROTARY UPPER DRUM

- . The Rotary Video Heads and Confidence Heads cannot be replaced individually. The entire Rotary Upper Drum Assembly must be replaced when any one of these heads fail.
- . The Playback Pre-amplifier Board for the video signal, the PA-85 Board, is mounted on the Rotary Upper Drum, and the dynamic balance of the entire Rotary Upper Drum is perfectly adjusted in this condition. Therefore, the PA-85 Board should not be removed from the Rotary Upper Drum. When the PA-85 Board fails, replace the entire Rotary Upper Drum Assembly.

Tool: Drum eccentricity gauge (1)
Drum eccentricity gauge (2)
Drum eccentricity gauge (3)
Drum eccentricity gauge (4)
Reel table height adjustment base
jig

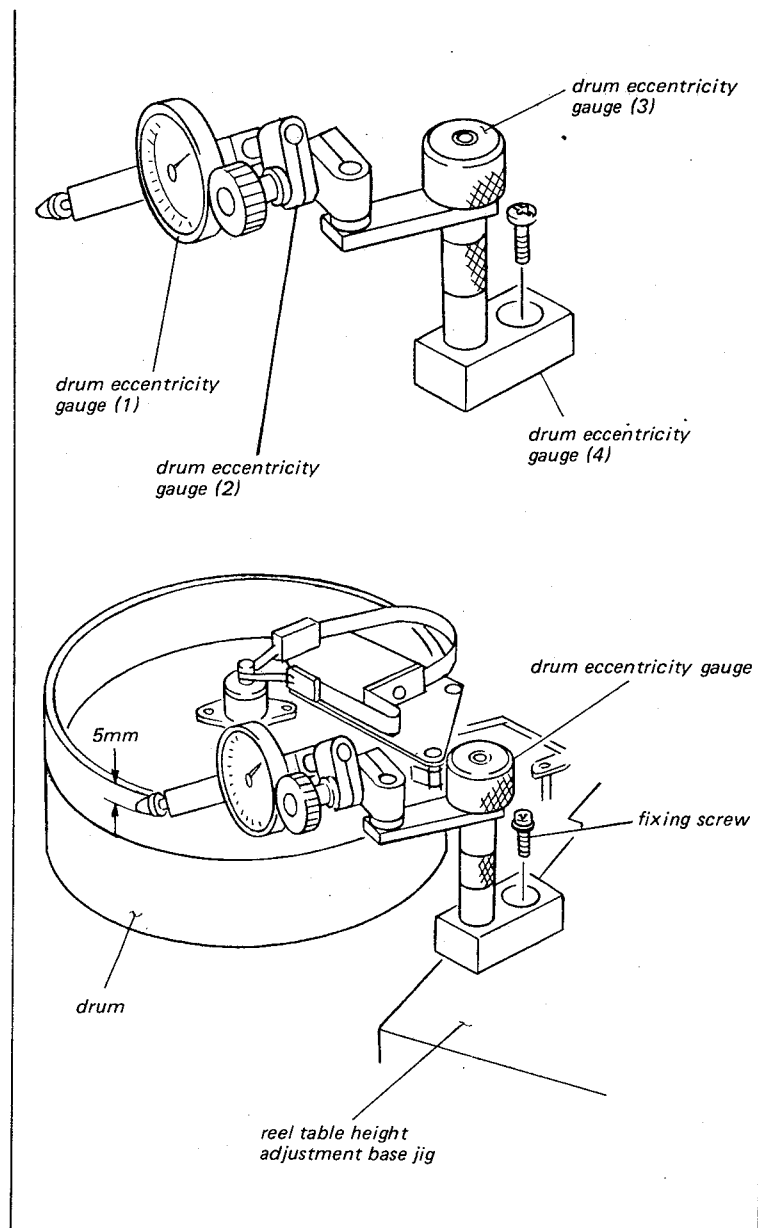
Replacement procedure:

- (1) Remove the fixing screws of the stay.
- (2) Remove the brush of the Slip-ring Block.
- (3) Unsolder the twelve leads from the round printed circuit board at the center of the drum.
- (4) Loosen the fixing screws of the Rotary Upper Drum, and remove the Rotary Upper Drum from the Head Drum Assembly.
- (5) Clean the matching surfaces of the flange and the new Rotary Upper Drum with a cloth moistened with a cleaning fluid. (If there is a spacer between drum and flange, it should be left in place, or a spacer of the same thickness should be re-installed.)
- (6) Place the Rotary Upper Drum so that the silk screened "CH-A" on the PA Board is close to the "A" side of the round printed circuit board. Thread the two screws snugly but not tight.



Adjustment procedure:

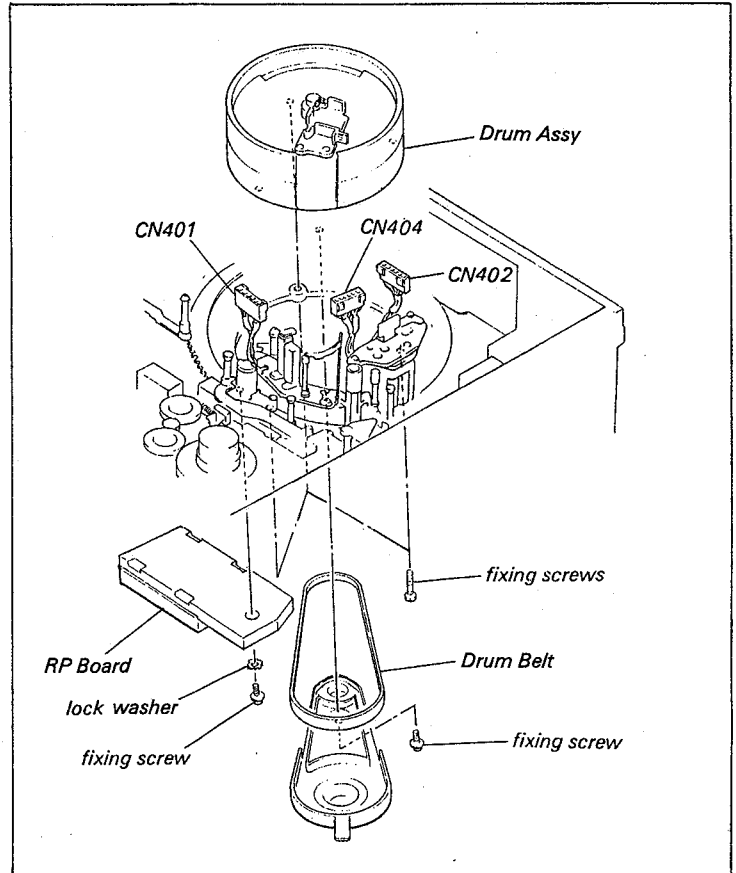
- (1) Place the reel table height adjustment base jig in the cassette's position.
- (2) Assemble the drum eccentricity gauges (1), (2), (3) and (4), as shown in the figure. Mount the assembled gauges on the reel table height adjustment base jig. Adjust the position of the gauge so that the tip probe are at a point about 5mm from the top edge of the Rotary Upper Drum.
- (3) Turn the Rotary Upper Drum slowly clockwise and check that the pointer deflection of the gauge is within 5 micron during one complete turn of the Rotary Upper Drum. If this specification is satisfied, proceed with Step (5). If it is not, perform Step (4).
- (4) Tap the Rotary Upper Drum with a nylon hammer or a screwdriver handle so that the gauge deflection remains within 5 micron.
- (5) After adjustment, tighten the two screws that secure the Rotary Upper Drum, alternately and gradually using a tightening torque of 8kg.cm.
- (6) After the screws are tightened, check again that the eccentricity of the Rotary Upper Drum is within 5 micron.
- (7) Solder the leads.
- (8) Mount the brush and stay.
- (9) After replacement, perform the adjustment in Section 4-17.



4-2. REPLACEMENT OF THE DRUM ASSEMBLY

Replacement procedure:

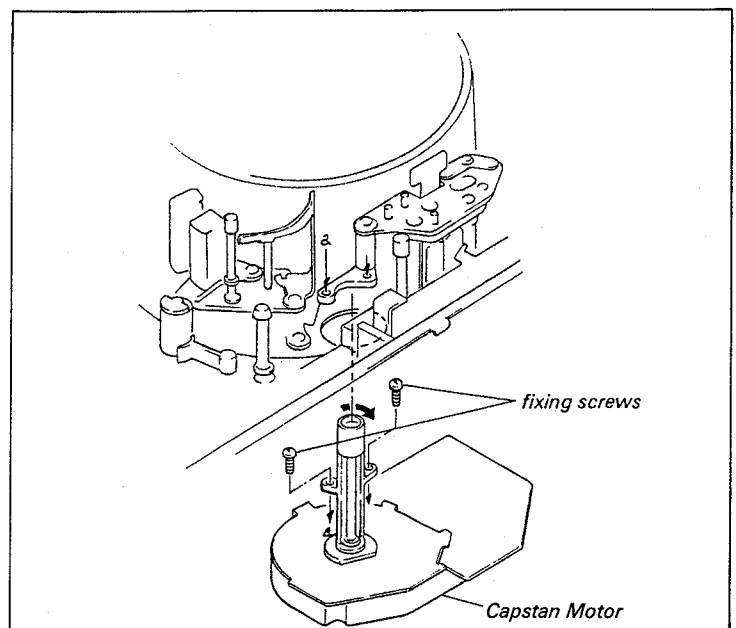
- (1) Remove the two fixing screws on the stay of the upper side of the unit.
- (2) Disconnect connector CN 403 of the brush on the SR-22 Board.
- (3) Remove the RP Board on the back side of the unit.
- (4) Remove the D Pulley Cover and then remove the Drum Belt.
- (5) Disconnect the three connectors which are connected to the Drum Block on the back side of the unit.
- (6) Remove the three fixing screws on the Drum Assembly.
- (7) Replace the Drum with a new one and twist the Drum in the clockwise direction when seen from the upper side of the unit, and tighten with the three fixing screws.
- (8) Install the parts in the reverse order of Steps (1) through (5).
- (9) After replacement, perform the adjustment in Section 4-17.



4-3. REPLACEMENT OF THE CAPSTAN MOTOR

Replacement procedure:

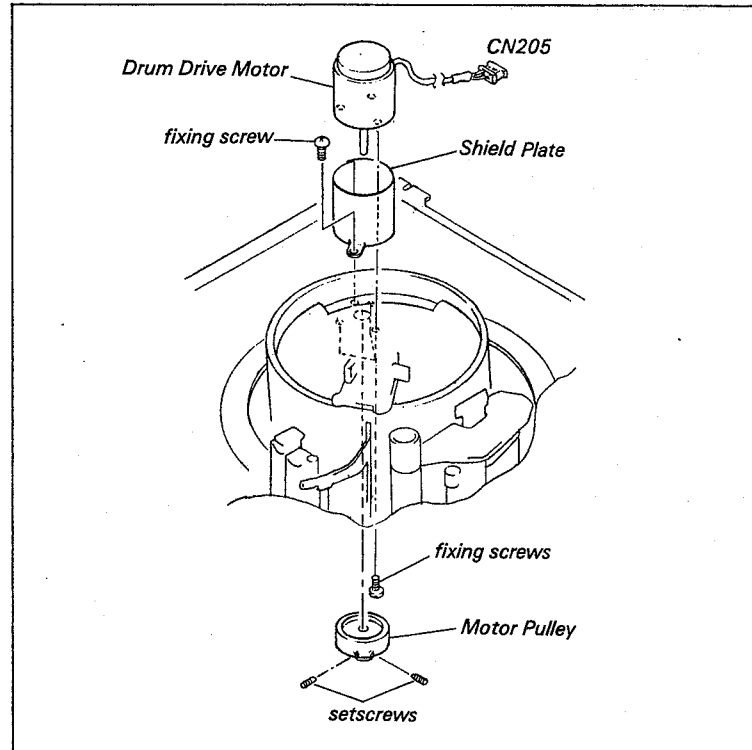
- (1) Disconnect the CN1 on the board of the Capstan Motor.
- (2) Remove the two fixing screws on the Capstan Motor and then remove the Capstan Motor from the unit.
- (3) Tighten the new Capstan Motor into the unit with two screws but do not tighten.
- (4) Turn the Capstan Motor in the direction of the arrow and then tighten the two fixing screws.
- (5) After replacement, perform the adjustment in Section 4-17.



4-4. REPLACEMENT OF THE DRUM DRIVE MOTOR

Replacement procedure:

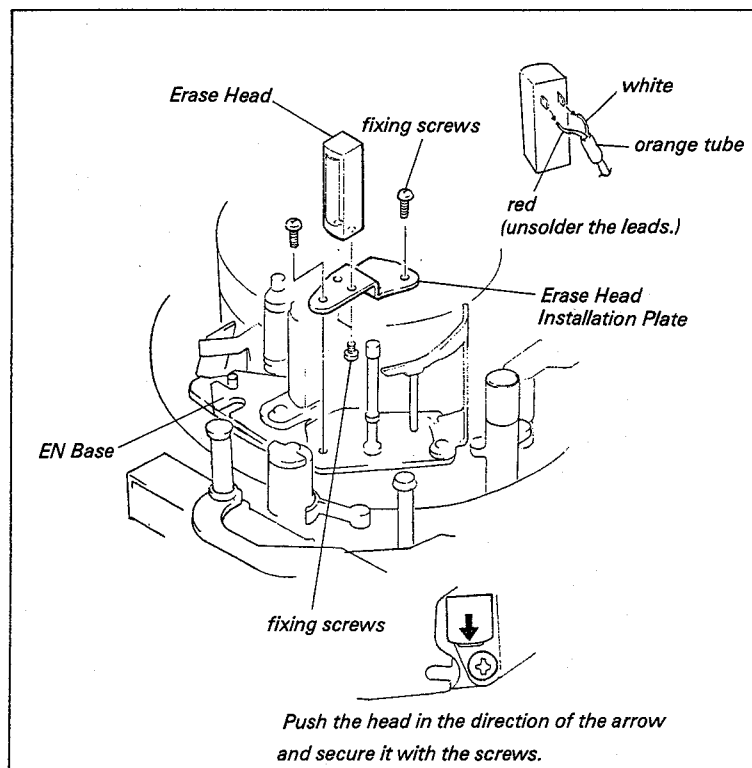
- (1) Remove the D Pulley Cover and then remove the Drum Belt.
- (2) Loosen the two set screws, and remove the Motor Pulley.
- (3) Remove the three fixing screws of the Motor.
- (4) Open the SV Board and remove connector CN205 of the motor.
- (5) Remove the Shield Plate of the upper side of the unit, and pull out the motor from the Shield Plate.
- (6) Replace the motor with a new one.
- (7) Install the parts in the reverse order of Steps (1) through (5).



4-5. REPLACEMENT OF THE ERASE HEAD

Replacement procedure:

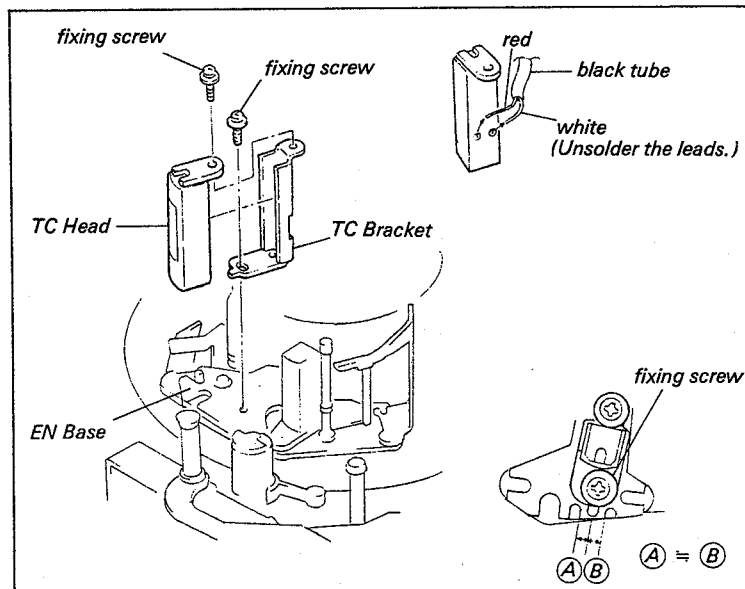
- (1) Loosen the two fixing screws and remove the Erase Head Bracket.
- (2) Unsolder the two leads on the Erase Head.
- (3) Loosen the two fixing screws and remove the Erase Head from the bracket.
- (4) Replace the Erase Head with a new one, and push the Erase Head in the direction of the arrow and secure it with the two fixing screws to the bracket.
- (5) Install the parts in the reverse order of Steps (1) and (2).
- (6) After replacement, perform the adjustment in Section 4-17.



4-6. REPLACEMENT OF THE TC HEAD

Replacement procedure:

- (1) Remove a fixing screw of the TC Bracket from the EN Base and then remove the TC Bracket.
- (2) Unsolder the two leads on the TC Head.
- (3) Remove a fixing screw and then remove the TC Head from the TC Bracket.
- (4) Replace the TC Head with a new one.
- (5) Install the parts in the reverse order of Steps (1) through (3).
- (6) When installing the TC Bracket to the EN Base, secure the fixing screw in the portion as shown in the figure.
- (7) After replacement, perform the adjustment in Section 4-17.



4-7. REPLACEMENT OF THE AUDIO/CTL HEAD

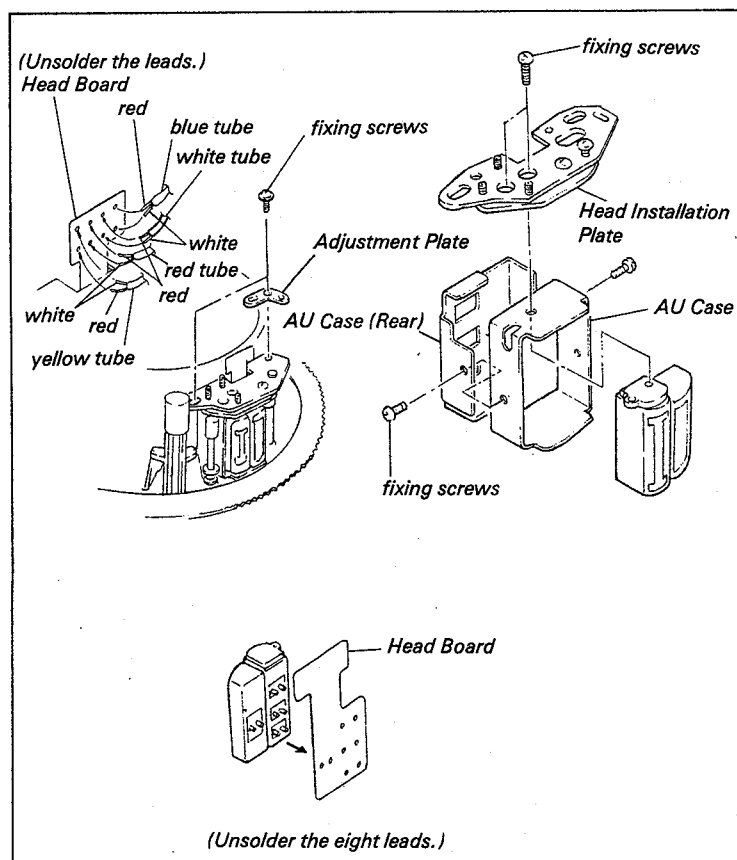
Replacement procedure:

- (1) Remove the two fixing screws of the Audio/CTL Head Block, then remove the Audio/CTL Head Block from the unit.
- (2) Unsolder the eight leads on the PC Board of the Audio/CTL Head.
- (3) Remove the two fixing screws as shown in the figure and then remove the AU Case (Rear).
- (4) Remove the two fixing screws of head, and then remove the Audio/CTL Head and AU Case from the Bracket of head.
- (5) Unsolder the PC Board of the Audio/CTL Head.
- (6) Replace the Audio/CTL Head with a new one.
- (7) Install the Audio/CTL Head in the reverse order of Steps (1) through (5).

Note: 1. Solder the Head PC Board which is pushed against the back side of the head.

2. Tighten the screws so that the AU Case (Rear) is pushed against the Bracket of head and AU Case.

- (8) After replacement, perform the adjustment in Section 4-17.



4-8. REPLACEMENT OF THE GUIDE ROLLER ON THE THREADING RING

. There are four guide rollers on the Threading Ring. This section provides replacement of the four guide rollers.

Tool: Thickness gauge (0.2 mm thick)

Replacement procedure:

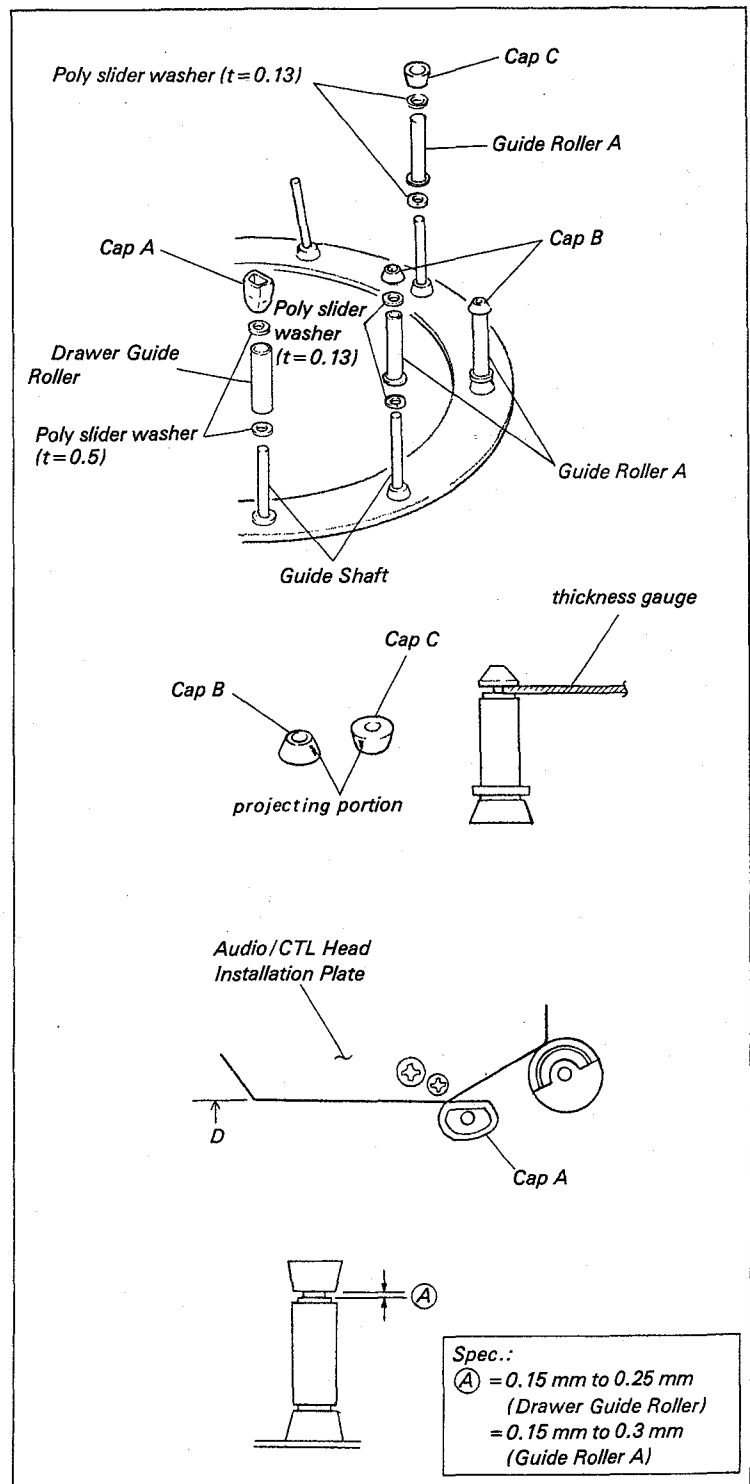
- (1) Turn the pulley on the Gear Box by hand until the Guide Roller which is replaced moves in the front of the center of the Take-up Reel Table.
- (2) Hold the Threading Ring, and pull out the Cap and remove the Guide Roller (Be careful not to bend the guide shaft when pulled out cap.)
- (3) Clean the guide shaft with a cloth moistened with cleaning fluid.
- (4) Replace the Guide Roller with a new one and assemble it. (At the same time, replace the Cap with a new one.) Place the 0.2 mm thickness gauge between the Cap (A, B or C) and the Guide Roller, and push the Cap to the shaft until the Cap touches the thickness gauge. (At the same time, be careful not to deform the Threading Ring, and to bend the guide shaft.)

. Direction of installing the Cap

Cap A Match the edge of the Audio/CTL Head Bracket (D plane) with the flat plane of the Cap A. When not matching, turn the Cap A. (Turn the Threading Ring after assembling the Cap A. Confirm the positional relationship between the Head Bracket and the Cap A at the position in the figure.)

Cap B, C The projecting portion of the Cap B or C faces the circle center of the Threading Ring.

- (5) Confirm that the Guide Roller rotates smoothly and the clearance A meets the each required specification.
- (6) After replacement, perform the adjustment in Section 4-17.



4-9. REPLACEMENT OF THE PINCH ROLLER

Replacement procedure:

- (1) Turn the Pulley of the Gear Box Block by hand and move the Threading Ring from the position of the unthreading state in about 90 degrees.
- (2) Remove the E Ring and then remove the Pinch Arm Ass'y from the Threading Ring.
- (3) Replace the Pinch Arm Ass'y with a new one.
- (4) Assemble it and adjust the position with the adjustment washer so that the specification is met.

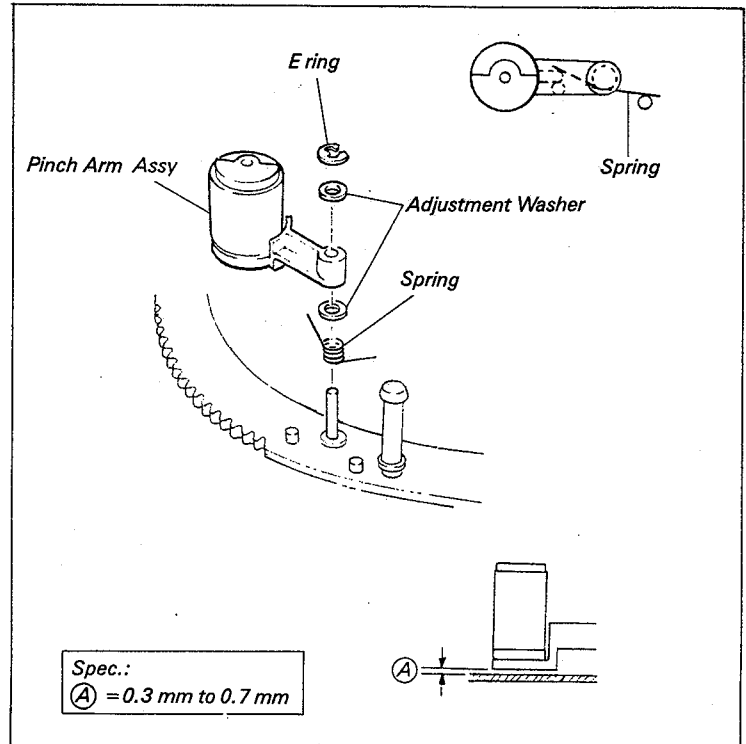
.Adjustment washer

3-701-437-01;

WASHER, POLY 2 MM DIA., 0.13 T

3-701-437-11;

WASHER, POLY 2 MM DIA., 0.25 T



4-10. REPLACEMENT OF THE THREADING RING

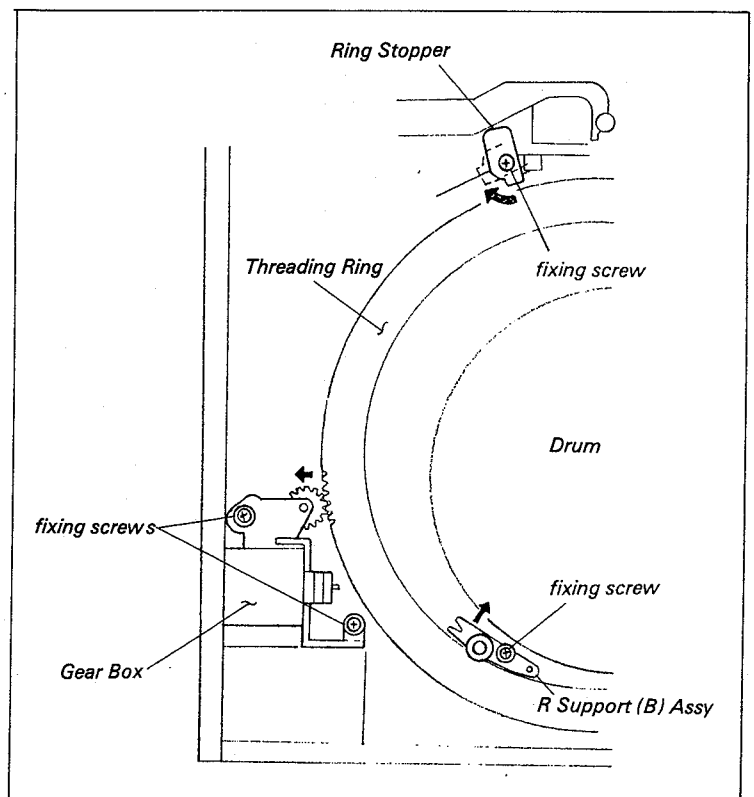
Replacement procedure:


- (1) Disconnect the connectors of the Audio/CTL Head, TC Head, Erase Head and harness of SE-18 Board, and pull out each harness to the upper side of unit.

Process: (i) Remove the four fixing screws of the Connector Panel Assy and open the VA Board at the back of unit.

- (ii) Disconnect the CN521 on the VA Board, the CN808 on the HN Board and the CN113, CN114 and CN115 on the SY Board.

- (iii) Pull out each harness which is disconnected the connectors to the upper side. (Remove harness clamber which secure the harness.)

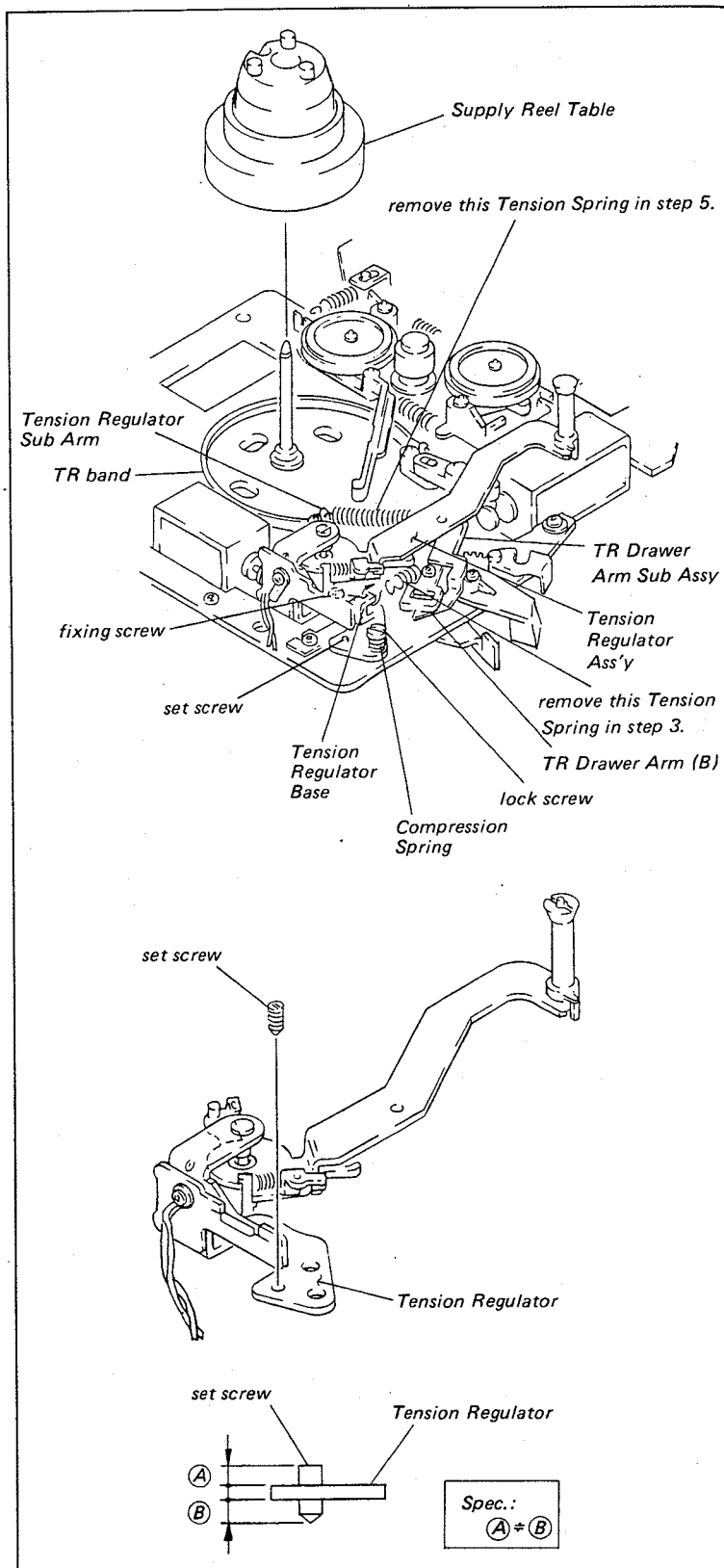


- 
- (2) Remove the harness clamper which secure the harness on the upper side of the unit.
 - (3) Remove the CN403 of the brush.
 - (4) Remove the two fixing screws of the stay and then remove the stay.
 - (5) Turn the pulley on the Gear Box by hand and move the Threading Ring from the position of the unthreading state in about 90 degrees.
 - (6) Loosen the two fixing screws of the Gear Box and cancel the engagement of the Threading Ring and the gear on the Gear Box.
 - (7) Loosen the fixing screw of the R Support (B) Assy and cancel the hold of threading ring.
 - (8) Loosen the fixing screw and fully turn the Ring Stopper as shown in the direction of the arrow.
 - (9) Remove the Threading Ring and replace it with a new one.
 - (10) Install the parts in the reverse order of Steps (1) through (8).
(Bind the harness to the original position with harness claspers.)
 - (11) After replacement, perform the adjustment in Section 4-17.

4-11. REPLACEMENT OF THE TENSION REGULATOR

Replacement procedure:

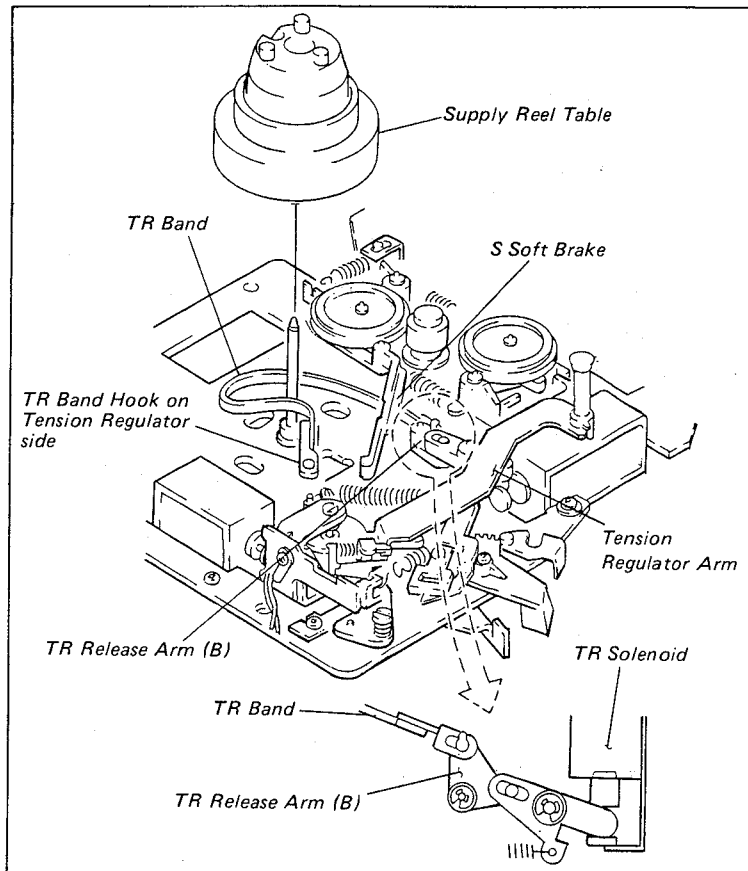
- (1) Disconnect Connector CN807 of the HN-102 Board.
- (2) Remove the Supply Reel Table.
- (3) Remove the spring from between the TR Drawer Arm (B) and the Spring Holder of the Tension Regulator Block.
- (4) Remove the TR Band from the Tension Regulator.
- (5) Remove the spring of the Tension Regulator Sub Arm.
- (6) Remove the lock screw and the fixing screw, and remove the Tension Regulator Block.
- (7) Check that the position of the set screw of new Tension Regulator Block meets the required specification, as shown in the figure.
- (8) Install the new Tension Regulator on the chassis with the fixing screw, compression spring and lock screw. At this time, note the following points:
 - (i) Install the Tension Regulator base so that it is parallel to the chassis.
 - (ii) Turn the lock screw back 180 degrees from the position at which it is tight.
- (9) Perform Steps (1) to (6) in reverse order.
- (10) After replacement, perform the adjustment in Section 4-17.



4-12. REPLACEMENT OF THE TR BRAKE BAND

Replacement procedure:

- (1) Remove the Supply Reel Table.
- (2) Remove the TR Band Hook from the Tension Regulator.
- (3) Remove the TR Band Hook from the TR Release Arm (B).
- (4) Fasten the TR Band Hook of the new TR Brake Band on the TR Release Arm (B) without damaging the TR Brake Band.
- (5) Pass it under the S Soft Brake without damaging the TR Brake Band.
- (6) Fasten the TR Band Hook on the Tension Regulator.
- (7) Install the Supply Reel Table.
- (8) After replacement, perform the adjustment in Section 4-17.



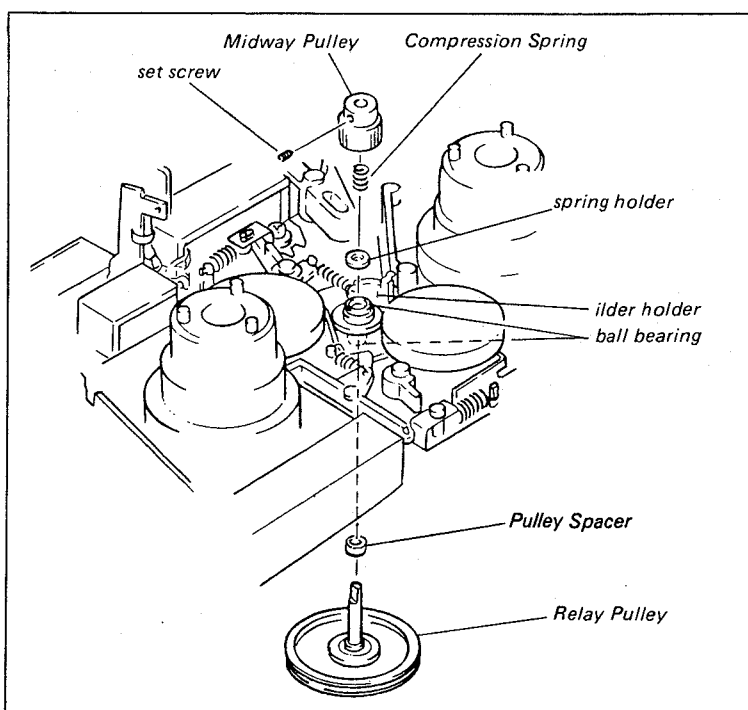
4-13. REPLACEMENT OF THE RELAY PULLEY

Tool: Allen wrench

(across flat has 1.27mm)

Replacement procedure:

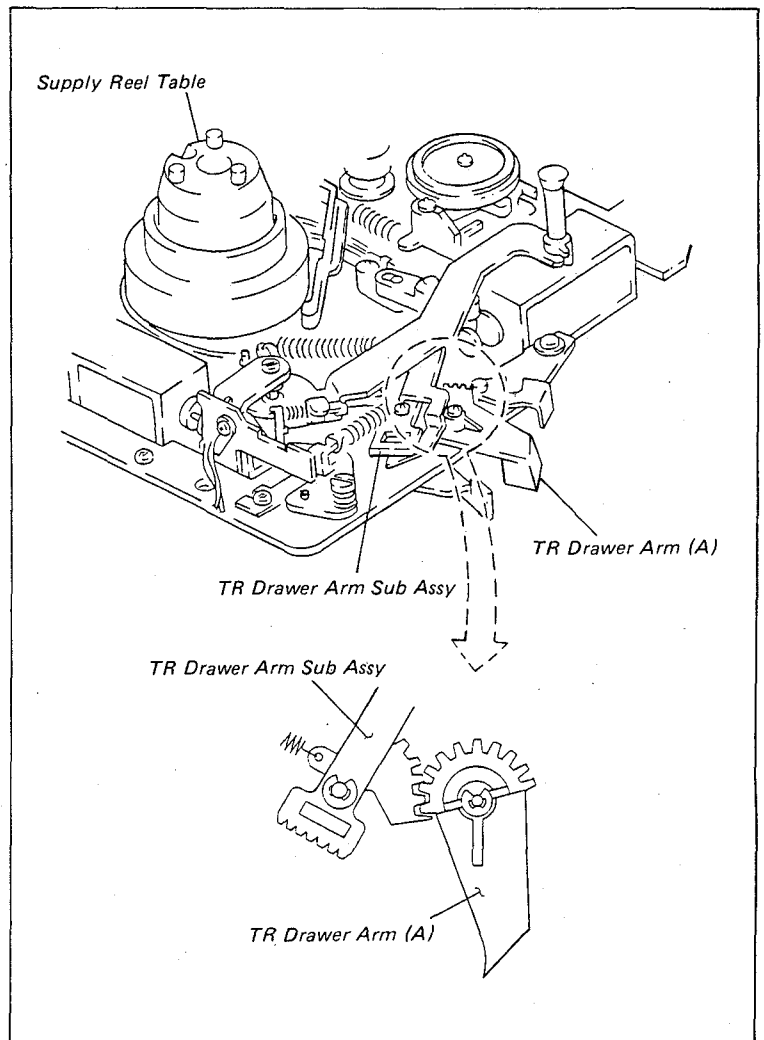
- (1) Loosen the set screw of the Midway Pulley and remove the Relay Pulley and Pulley Spacer.
- (2) Check that the two ball bearings are installed in the Idler Holder.
- (3) Insert the Relay Pulley and Pulley Spacer.
- (4) Insert the Spring Holder, Compression Spring and Midway Pulley, in order.
- (5) Insert the set screw of the Midway Pulley into the D cut portion of the pulley shaft.
- (6) Align the ends of the Midway Pulley and the pulley shaft, and tighten the set screw.



4-14. REPLACEMENT OF THE TR DRAWER ARM (A) OR SUB ASSY

Replacement procedure:

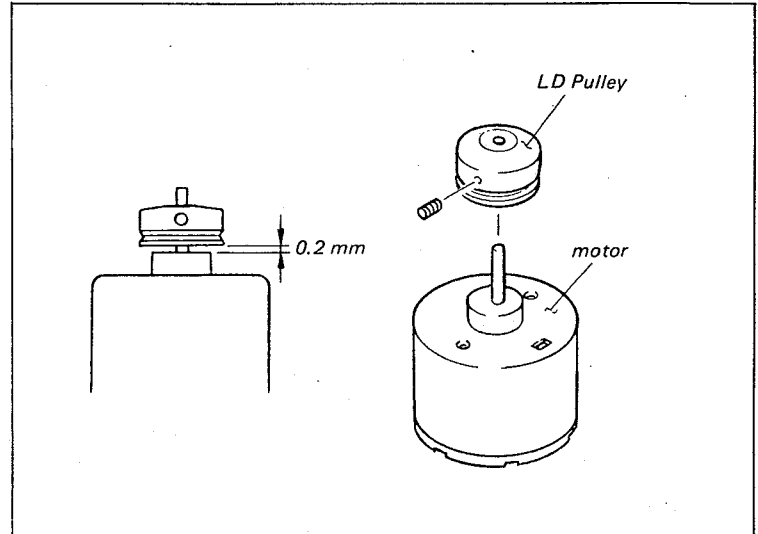
- (1) When replacing the TR Drawer Arm (A) or Sub Assy, assemble TR Drawer Arm (A) and Sub Assy to meet the positional relationship, as shown in the figure.
- (2) After replacement, perform the adjustment in Section 4-17.



4-15. REPLACEMENT OF THE THREADING MOTOR

Replacement procedure:

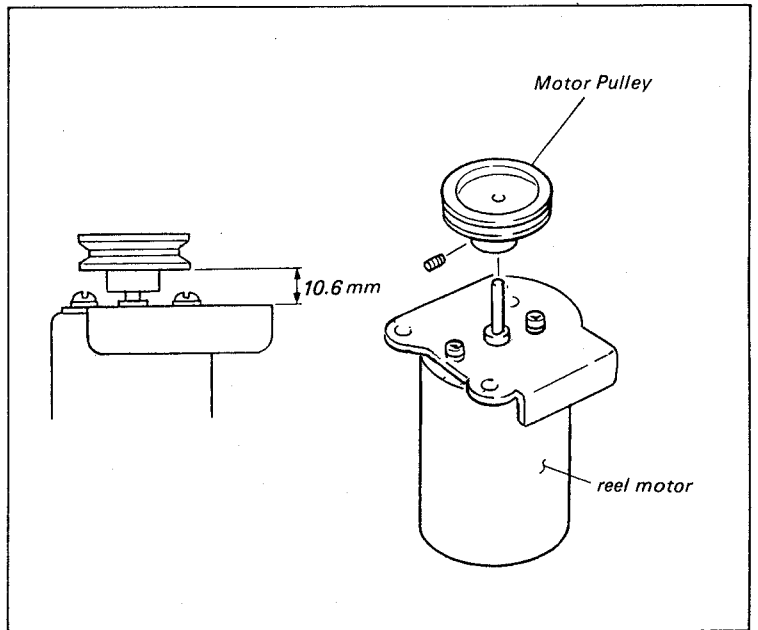
- (1) Disconnect connector CN209/SV Board.
- (2) Remove the gear box block from the unit.
- (3) Remove the LD Pulley from the defective threading motor.
- (4) Replace the new motor.
- (5) Install the LD Pulley. Adjust the position of the LD Pulley so that the clearance between the LD Pulley and the motor meets the required specification.
- (6) After replacement, perform the adjustment in Section 4-17.



4-16. REPLACEMENT OF THE REEL MOTOR

Replacement procedure:

- (1) Disconnect connector CN210/SV Board.
- (2) Remove the Reel Motor Block.
- (3) Remove the Motor Pulley from the defective Reel Motor.
- (4) Install this pulley in the new motor.
- (5) Adjust the position of the Motor Pulley so that the clearance between the Motor Pulley and motor meets the required specification.



4-17. ITEMS TO BE ADJUSTED AFTER MAIN PARTS REPLACEMENT

(Numbers in parenthesis refer to Section Nos.)

Replacement of Upper Drum Assembly

Video Tracking Adjustment (7-6) → CTL Head Position Adjustment (7-10) → TC Head Position Adjustment (7-14) → Video Head Dihedral Adjustment (7-16) → Drum Lock Phase Adjustment (9-7) → ϕ^2 Phase Adjustment (9-8) → Switching Position Adjustment (9-5) → Confidence Switching Position Adjustment (9-6) → Picture Splitting Compensation Adjustment (9-9) → Drum AFC Bias Adjustment (9-11) → Drum AFC Transient Adjustment (9-12) → Video System Adjustment

Replacement of Drum Assembly

Video Tracking Adjustment (7-6) → CTL Head Position Adjustment (7-10) → TC Head Position Adjustment (7-14) → Video Head Dihedral Adjustment (7-16) → Drum Lock Phase Adjustment (9-7) → ϕ^2 Phase Adjustment (9-8) → Switching Position Adjustment (9-5) → Confidence Switching Position Adjustment (9-6) → Picture Splitting Compensation Adjustment (9-9) → Drum AFC Bias Adjustment (9-11) → Drum AFC Transient Adjustment (9-12) → Video System Adjustment

Replacement of Capstan Motor

Pinch Press Mechanism Block Position Adjustment (5-9-1) → Capstan Free Speed Adjustment (9-1) → Capstan Fast Lock Phase Adjustment (9-4) → Video Tracking Adjustment (check)(7-6)

Replacement of AUDIO/CTL Head

Audio/CTL Head Zenith Adjustment (7-7) → Audio Head Height Adjustment (7-8) → Audio Head Phase Adjustment (7-9) → Video Tracking Adjustment (7-6) → CTL Head Position Adjustment (7-10) → Audio System Adjustment

Replacement of Erase Head

Erase Head Zenith Adjustment (7-5) → Video Tracking Adjustment (check)(7-6) → Full Erase OSC Frequency/Level Adjustment (10-8)

Replacement of TC Head

TC Head Zenith Adjustment (7-11) → TC Head Hight Adjustment (7-12) → TC Head Tape-to-Head Contact Adjustment (7-13) → Video Tracking Adjustment (check)(7-6) → TC Head Position Adjustment (7-14) → Time Code REC Current Adjustment (12-1)

Replacement of Guide Roller on Threading Ring

Video Tracking Adjustment (check)(7-6)

Replacement of Pinch Roller

Tape Stopper Position Adjustment (check)(5-7-5) —→ Pinch Press Mechanism Block Position Adjustment (5-9-1) —→ Video Tracking Adjustment (check)(7-6)

Replacement of Tension Regulator

S-Tension Regulator Arm Slantness Adjustment (7-1) —→ S-Tension Regulator Arm Operating Position Adjustment (5-8) —→ TR Stopper A Clearance Adjustment (5-8-2) —→ Video Tracking Adjustment (7-6)

Replacement of TR Brake Band

Play Back Tension Adjustment (6-3)

Replacement of TR Drawer Arm (A)

TR Stopper A Clearance Adjustment (check)(5-8-2)

Replacement of Threading Motor

Threading Ring Engaging Adjustment (5-7-2)

Replacement of Threading Ring

Threading Ring Rotation Adjustment (5-7-1) —→ Threading Ring Engaging Adjustment (5-7-2) —→ Threading/Unthreading Switch Position Adjustment (5-7-3) —→ Threading Ring Stop Position Adjustment (5-7-4) —→ Pinch Press Mechanism Block Adjustment (5-9-1) —→ Video Tracking Adjustment (7-6)

SECTION 5

LINK AND DRIVE SYSTEM ALIGNMENT

5-1. REEL TABLE HEIGHT ADJUSTMENT

. Because the Reel Table Height Adjustment functions as a reference in the entire tape run system, it is required that these adjustments be performed carefully.

Mode: Unthreading end

Tool: Reel table height check base jig
Reel table height check jig

Check procedure:

- (1) Check that the "SO" and "TO" probes of the reel table height check jig slide over their respective Reel Table Flanges and that there is clearance between the flange and the probe.
- (2) Check that the "SX" and "TX" probes are blocked by the flange.
.Use the "SO" and "SX" probes for the Supply Reel Table.
.Use the "TO" and "TX" probes for the Take-up Reel Table.

Adjustment procedure:

- (1) Adjust with the washer under the Reel Table to meet the required specification.

Adjusting washer:

Poly Slider Washer, 3mm dia.

0.13 mm thick : 3-701-439-01

0.25 mm thick : 3-701-439-11

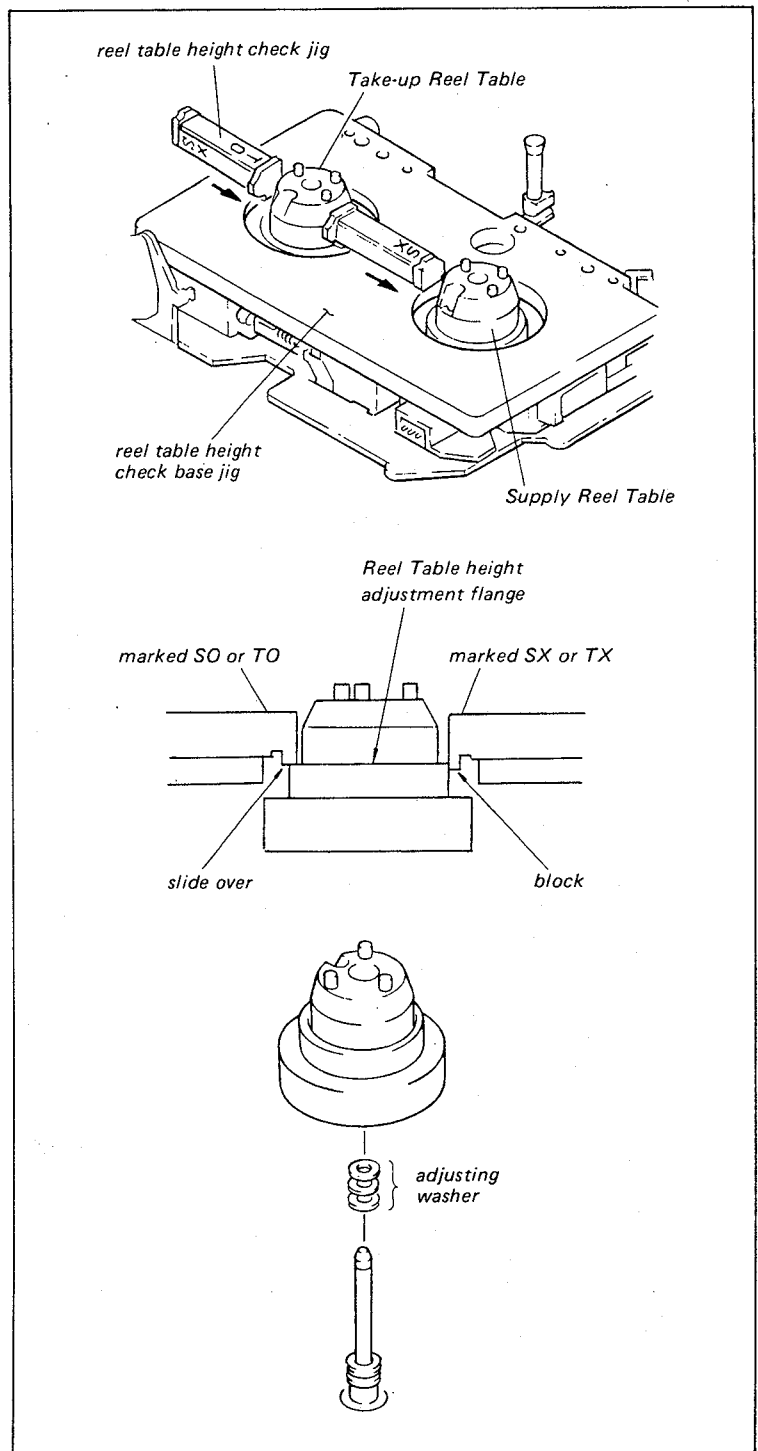
0.5 mm thick : 3-701-439-21

Guide Roller Washer, 3mm dia.

0.05 mm thick : 3-621-910-01

0.1 mm thick : 3-621-910-11

- . Don't put the Guide Roller Washer in the top position.



5-2. BRAKE SYSTEM ADJUSTMENT

5-2-1. T Soft Brake Clearance Adjustment

Mode: Unthreading end

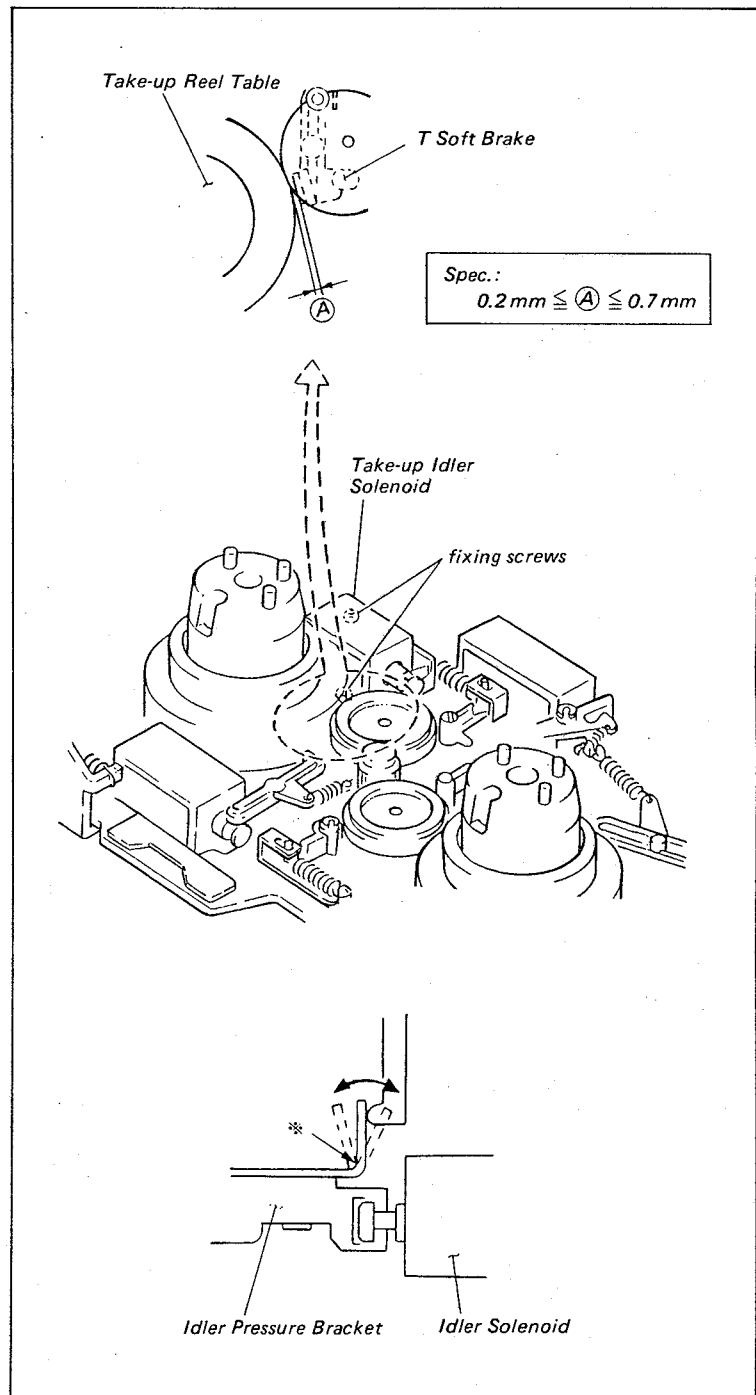
Tool: Thickness gauge

Check procedure:

- (1) Push the plunger of the T Idler Solenoid in as far as possible by hand. Check that the clearance between Take-up Reel Table and T Soft Brake meets the required specification.

Adjustment procedure:

- (1) Bend the ※ marked portion of the Idler Pressure Bracket in the direction of the arrow so that it meets the required specification.



5-2-2. S Soft Brake Clearance Adjustment (Unthreading end mode)

Mode: Unthreading end

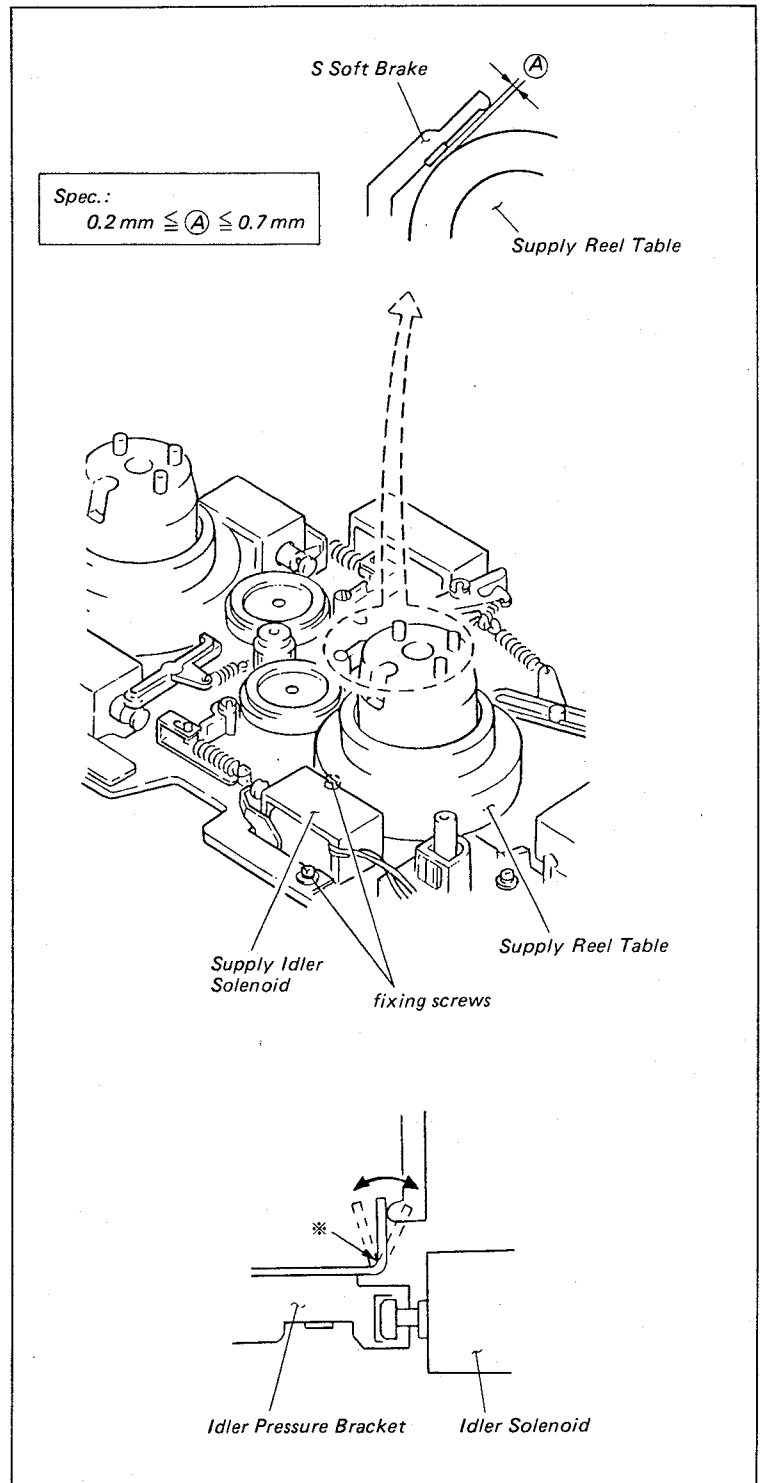
Tool: Thickness gauge

Check procedure:

- (1) Push the plunger of the S Idler Solenoid in as far as possible by hand. Check that the clearance between the Supply Reel Table and the S Soft Brake meets the required specification.

Adjustment procedure:

- (1) Bend the ※ marked portion of the Idler Pressure Bracket in the direction of the arrow so that it meets the required specification.



5-2-3. S Soft Brake Clearance Adjustment (Threading end mode)

Mode: Threading end

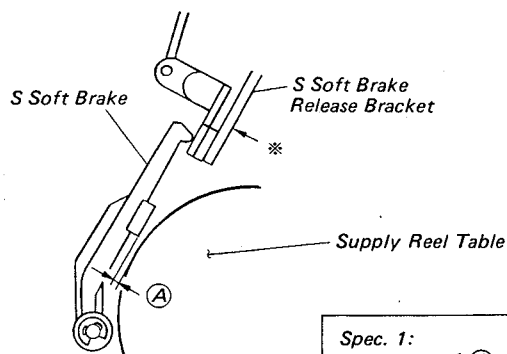
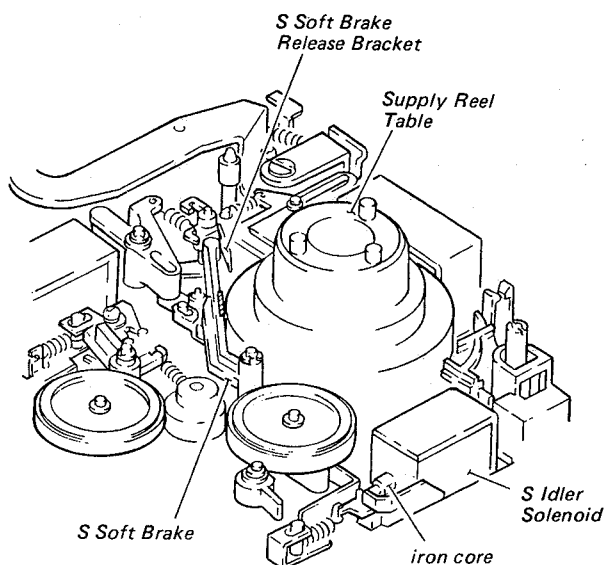
Tool: Thickness gauge

Check procedure:

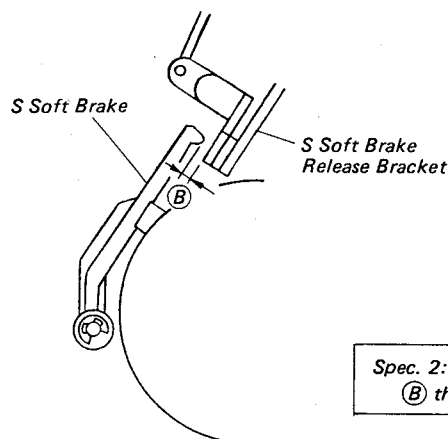
- (1) Push the plunger of the Pinch Solenoid in as far as possible by hand. Check that the clearance between the Supply Reel Table and the S Soft Brake meets the required specification (1).
- (2) Turn the Supply Reel Table by hand. Check that the clearance between the Supply Reel Table and the S Soft Brake meets the required specification (1) in every position.
- (3) Release the plunger of the Pinch Solenoid from the fully engaged position. Check that the clearance between the S Soft Brake Arm and the S Soft Brake Release Bracket meets the required specification (2).

Adjustment procedure:

- (1) Bend the ※ marked portion of the S Soft Brake Release Bracket in the direction of the arrow so that it meets the required specifications (1) and (2).



Spec. 1:
 $0.4 \text{ mm} \leq (A) \leq 0.8 \text{ mm}$



Spec. 2:
 (B) there is clearance

5-2-4. T Main Brake Clearance Adjustment

Mode: Unthreading end

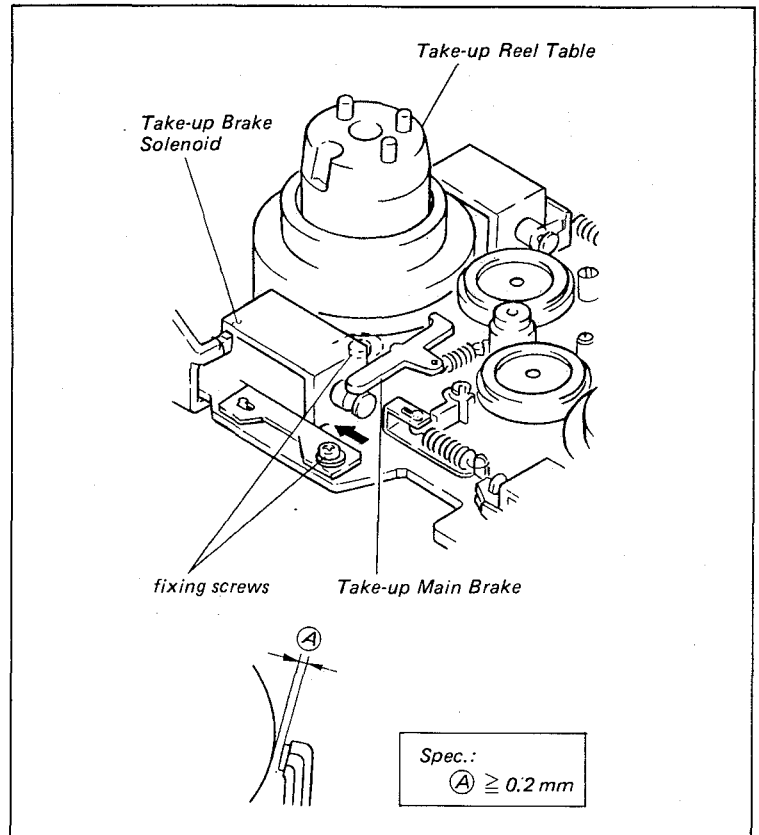
Tool: Thickness gauge

Check procedure:

- (1) Push the plunger of the Take-up Brake Solenoid in as far as possible by hand. Check that the clearance between the Take-up Reel Table and the Take-up Main Brake meets the required specification.

Adjustment procedure:

- (1) Adjust the position of the brake solenoid to meet the required specification.



5-2-5. S Main Brake Clearance Adjustment

Mode: Unthreading end

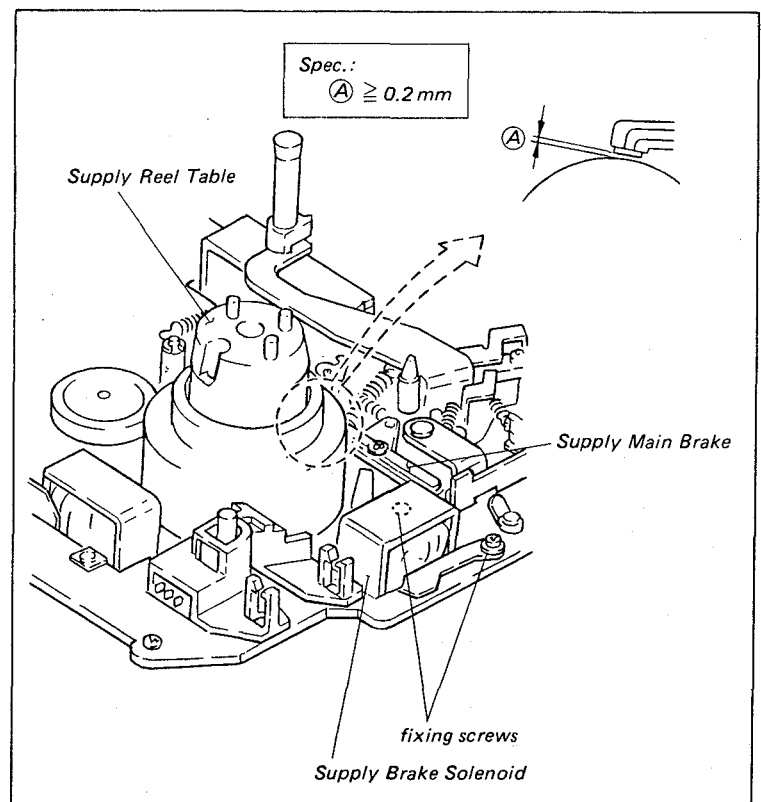
Tool: Thickness gauge

Check procedure:

- (1) Push the plunger of the S Brake Solenoid in as far as possible by hand. Check that the clearance between the Supply Reel Table and the Supply Main Brake meets the required specification.

Adjustment procedure:

- (1) Adjust the position of the Brake Solenoid to meet the required specification.



5-3. IDLER SYSTEM ADJUSTMENT

5-3-1. T/S Idler Solenoid Mounting Position Adjustment

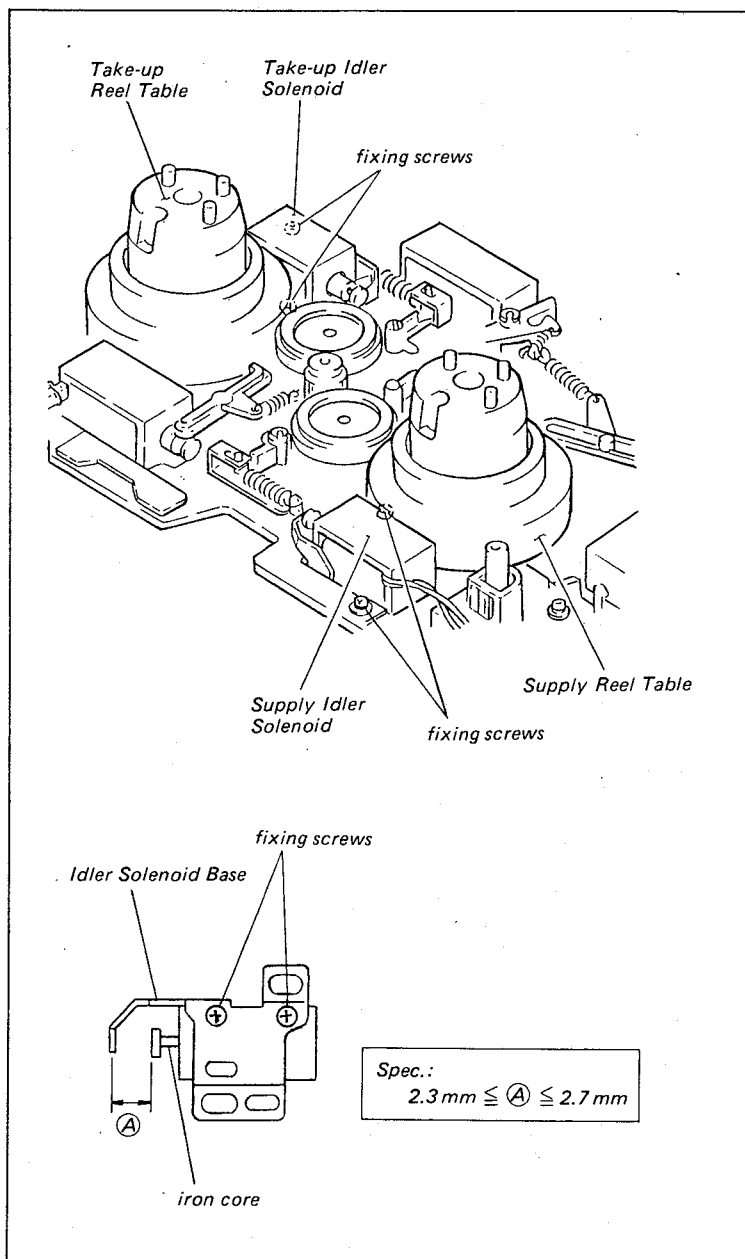
Mode: Unthreading end

Check procedure:

- (1) Push the plunger of the S Idler Solenoid in as far as possible by hand. Check that the clearance between the end of the plunger and the Idler Solenoid Base meets the required specification.
- (2) Repeat Step (1) with the T Idler Solenoid. Check that the clearance between the end of the plunger of the T Idler Solenoid and the Idler Solenoid Base meets the required specification.

Adjustment procedure:

- (1) Remove the Idler Solenoid Block from the machine.
- (2) Adjust the mounting position of the Idler Solenoid to meet the required specification.



5-3-2. T Idler Pressure Bracket Clearance Adjustment

Mode: Unthreading end

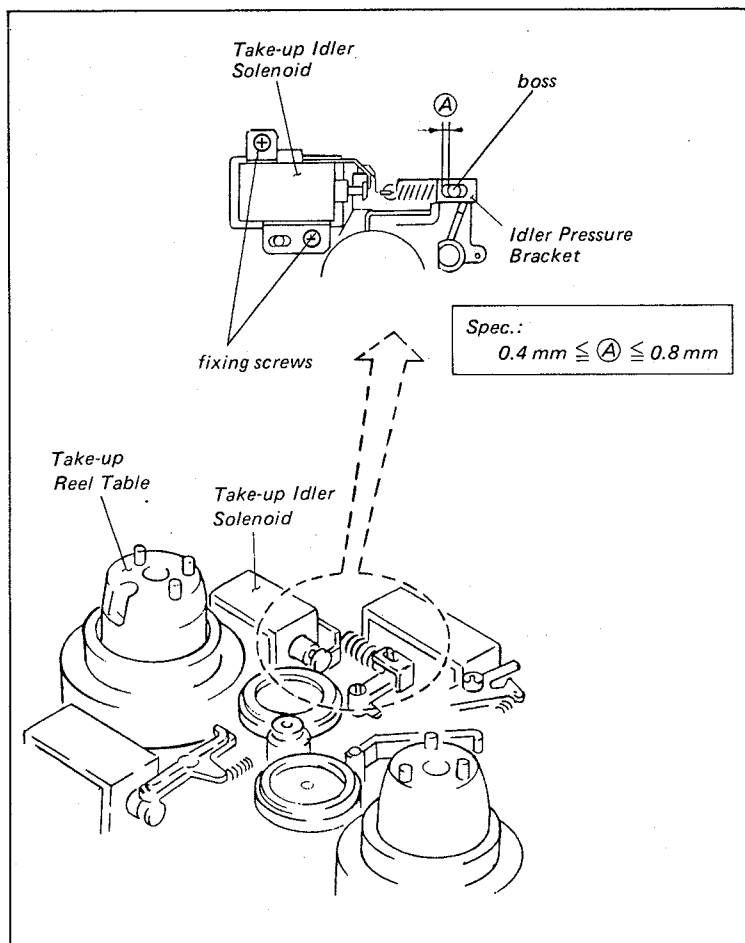
Tool: Thickness gauge

Check procedure:

- (1) Push the plunger of the T Idler Solenoid in as far as possible by hand. Check that the clearance between the boss and the Idler Pressure Bracket meets the required specification.

Adjustment procedure:

- (1) Adjust the position of the Idler Solenoid to meet the required specification.



5-3-3. S Idler Pressure Bracket Clearance Adjustment

Mode: Unthreading end

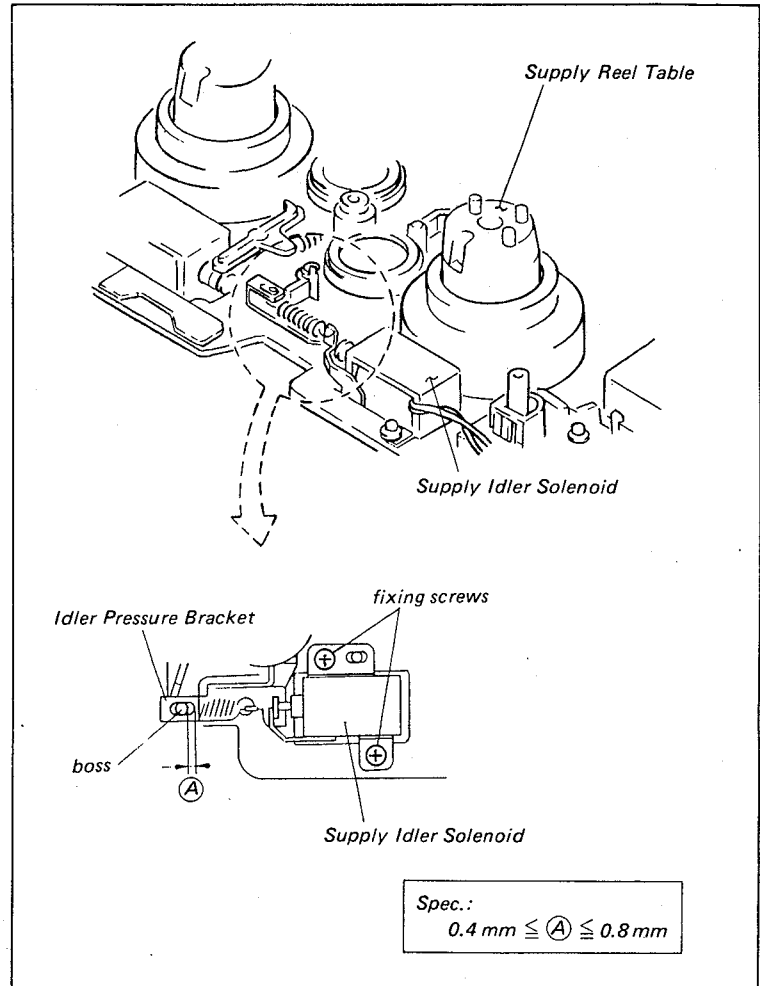
Tool: Thickness gauge

Check procedure:

- (1) Push the plunger of the S Idler Solenoid in as far as possible by hand. Check that the clearance between the boss and the Idler Pressure Bracket meets the required specification.

Adjustment procedure:

- (1) Adjust the position of the Idler Solenoid to meet the required specification.



5-4. TENSION REGULATOR SOLENOID MOUNTING POSITION ADJUSTMENT

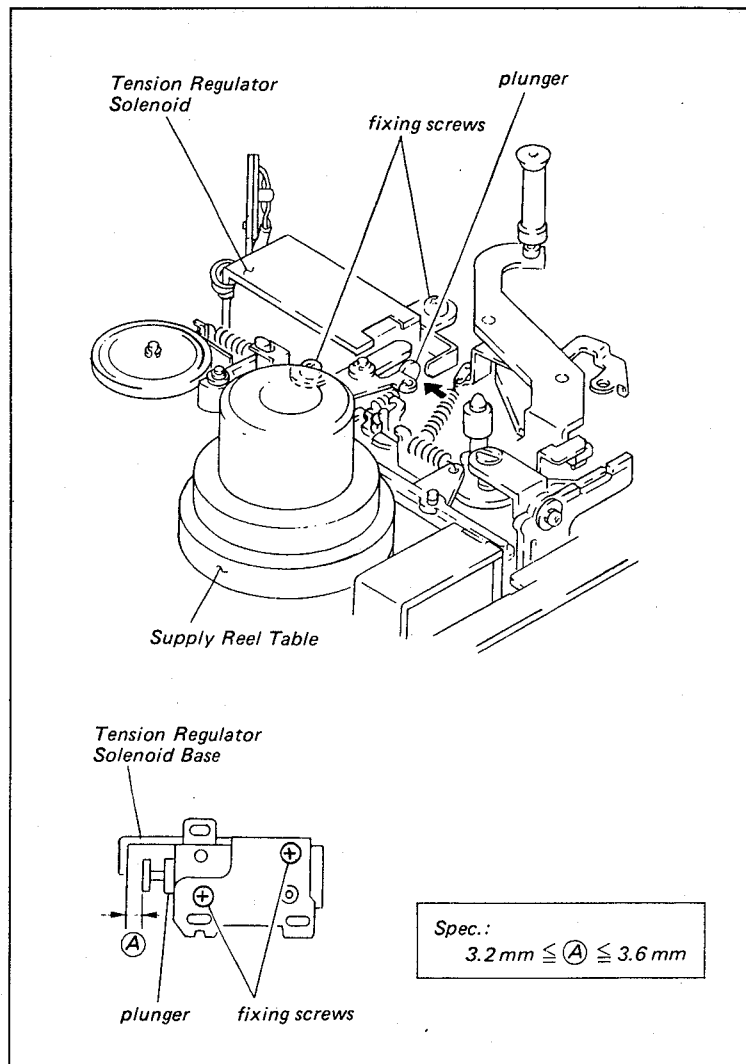
Mode: Unthreading end

Check procedure:

- (1) Push the plunger of the Tension Regulator Solenoid in as far as possible by hand. Check that the clearance between the end of the plunger and the Tension Regulator Solenoid Base meets the required specification.

Adjustment procedure:

- (1) Remove the Tension Regulator Block from the machine.
- (2) Adjust the mounting position of the Tension Regulator Solenoid to meet the required specification.



5-5. SWITCH SYSTEM ADJUSTMENT

5-5-1. Cassette-in Switch ON Point Adjustment

Mode: Unthreading end

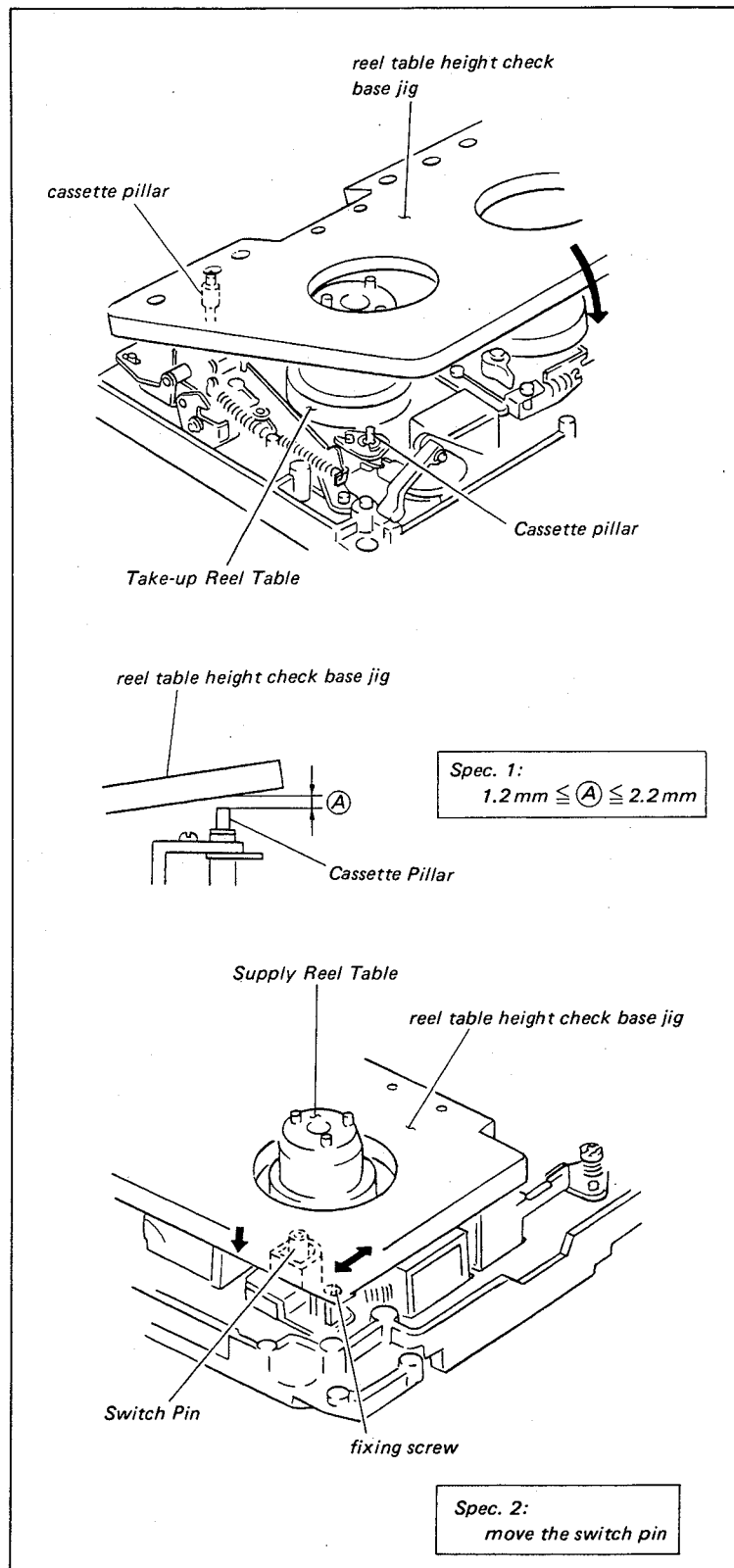
Tool: Reel table height check base jig
Small mirror for adjustment

Check procedure:

- (1) Place the reel table height check base jig on the Cassette Pillars of the drum side as shown in the figure.
- (2) Slowly lower the reel table height check base jig in the direction of the arrow.
- (3) When the Cassette-in Switch is turned ON (listen for the click sound), check that the clearance between the Cassette Pillar and the jig meets the required specification (1).
- (4) Place the reel table height check base jig on the Cassette Pillars.
- (5) Press down on the Switch Pin. Check that this switch pin moves. (Spec.(2))

Adjustment procedure:

- (1) Move the position of the Cassette-in Switch Block in the direction of the arrow to meet the required specifications (1) and (2).



5-5-2. Mis-recording Switch Position Adjustment

Mode: Unthreading end

Tool: Cassette tape (Never use the alignment tape)

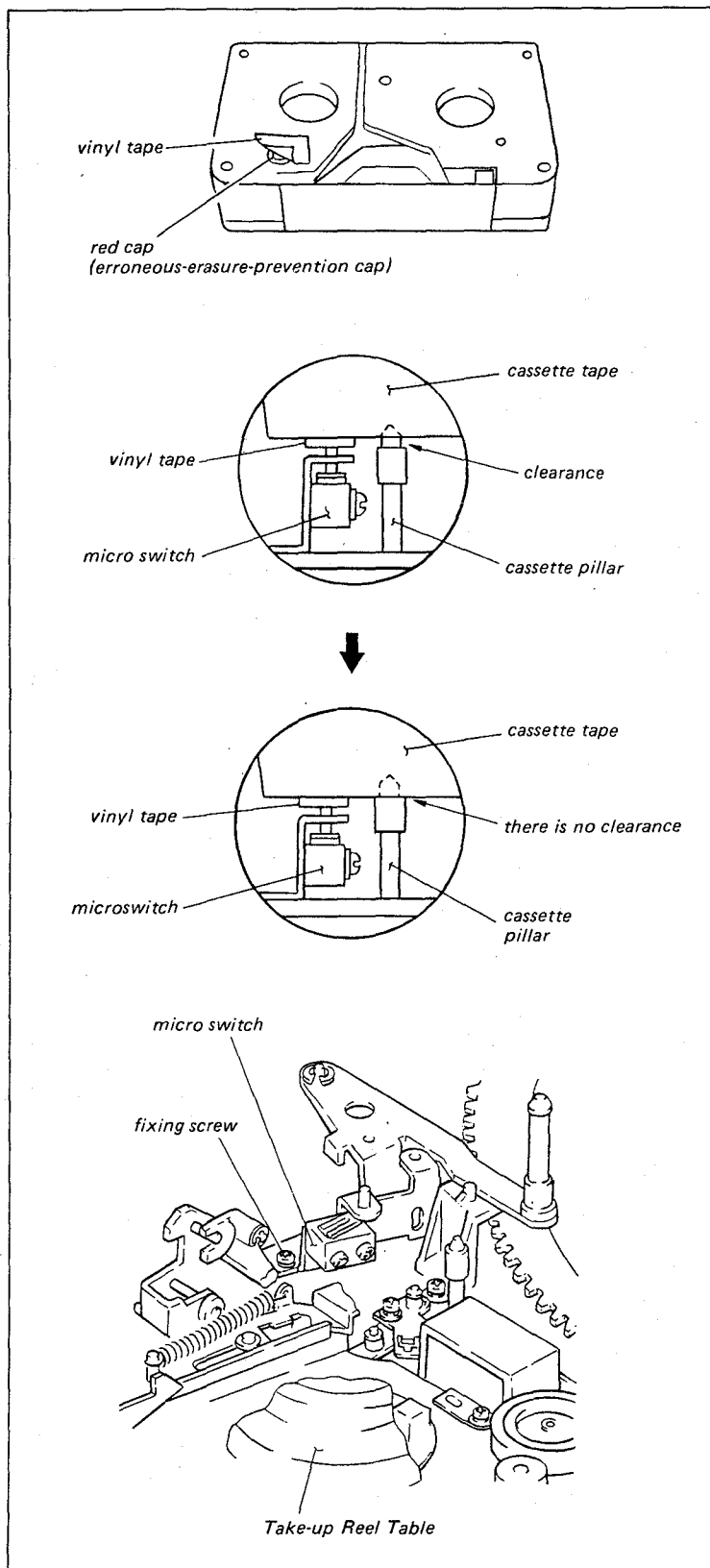
Small mirror for adjustment

Check procedure:

- (1) Check that the red cap is installed in the Erroneous-erasure-prevention Hole of the cassette tape. Put the cassette tape in home position.
- (2) Check that the VTR can be put into the Record mode.
- (3) Remove the cassette tape.
- (4) Apply three pieces of vinyl tape on the red cap as shown in the figure.
- (5) Put the cassette tape in home position again.
- (6) Check with mirror that there is no clearance between the Cassette Pillar and the cassette tape.

Adjustment procedure:

- (1) Remove the Mis-recording Switch Block from the machine.
- (2) Adjust the position of the microswitch to meet the required specification.
- (3) Install the Mis-recording Switch Block in the machine and check it again.



5-5-3. Cassette Lock Switch Position Adjustment

. This adjustment is performed with the Cassette-up Compartment installed in the VTR.

Mode: Cassette up

Tool: Circuit tester

Oscilloscope

Preparation:

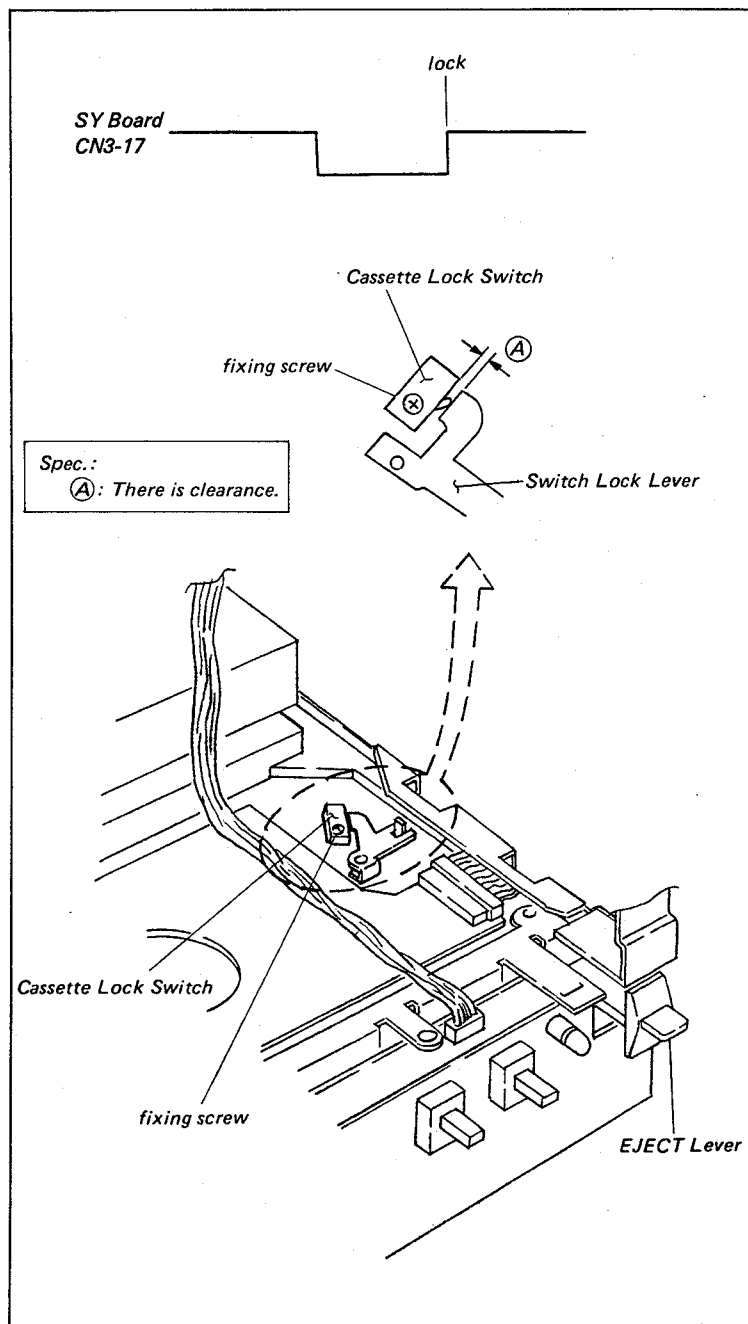
- (1) Connect the oscilloscope to CN3, Pin 17/SY Board.

Check procedure:

- (1) Insert the cassette-tape into the Cassette-up Compartment.
- (2) Depress the Cassette-up Compartment slowly.
- (3) Check that the level changes from High to Low before the Cassette-up Compartment locks.
- (4) Depress the Cassette-up Compartment further until it locks.
- (5) Check that the level changes from Low to High soon after the compartment locks.
- (6) Open the VA Ass'y of the back side in the unit.
- (7) Perform the Steps (1) and (2) again.
- (8) Check that there is clearance between the Switch Lock Lever and the micro-switch when the Cassette Lock Switch is in the ON position.

Adjustment procedure:

- (1) Adjust the position of the Cassette Lock Switch to meet the required specification.



5-5-4. Reed Switch Clearance Adjustment

. This adjustment is required only when the reed switch of the Tension Regulator is replaced or removed.

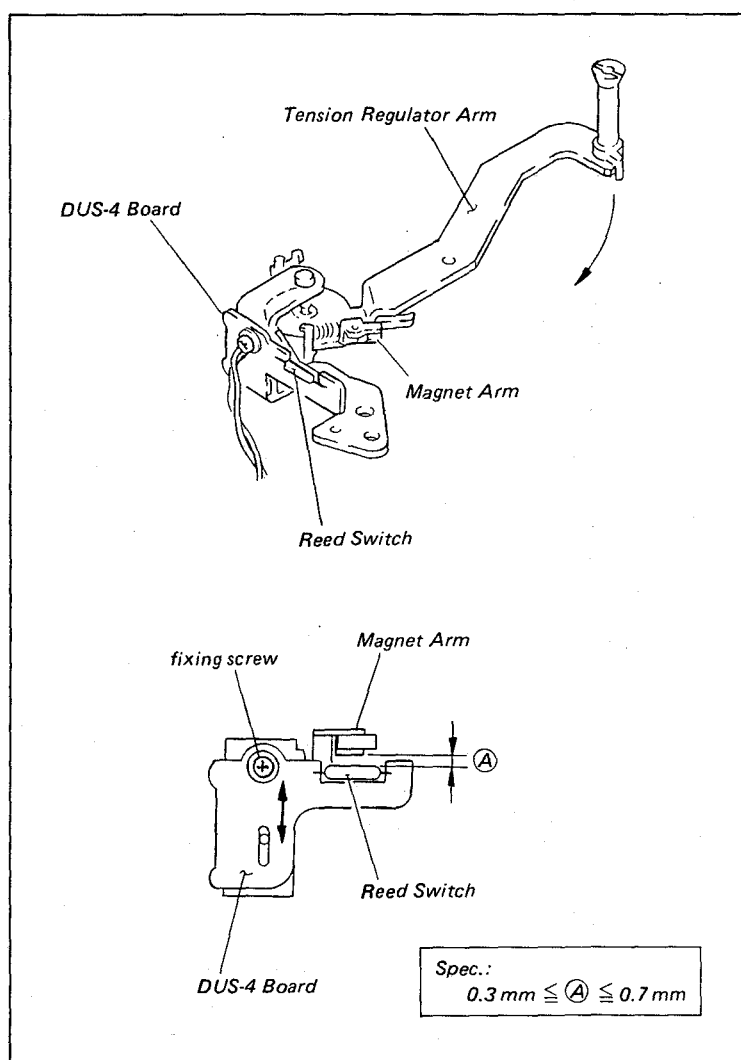
Tool: Thickness gauge

Check procedure:

- (1) Check that the clearance between the magnet and the reed switch of the Magnet Arm Block meets the required specification.

Adjustment procedure:

- (1) Adjust the position of the DUS-4 Board to meet the required specification.
(NOTE: Don't press the excessive forth to the reed switch.)



5-5-5. Eject Switch ON Point Adjustment

Mode: Unthreading end

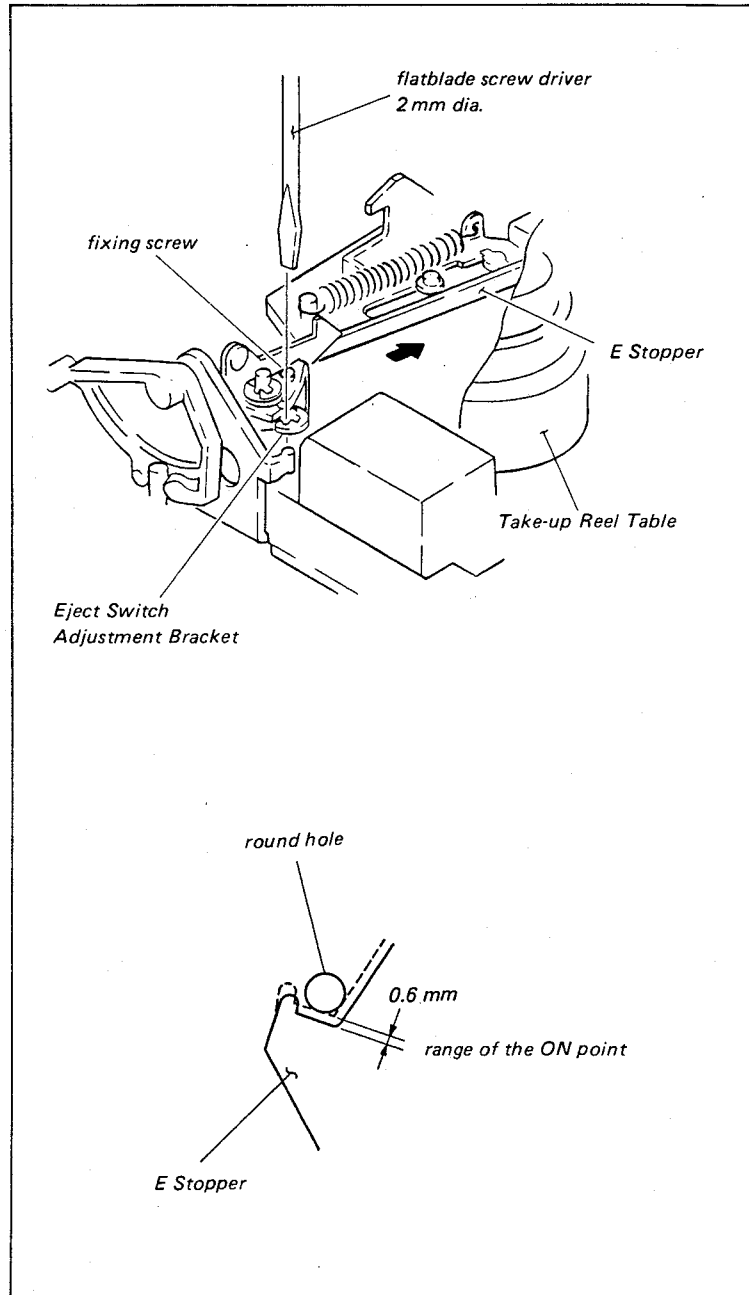
Check procedure:

- (1) Press slowly on the EJECT button, and move the E Stopper in the direction of the arrow.
- (2) With the Eject Switch is in the ON position (listen for click sound), check that the positional relationship between the U groove of the E Stopper and the round hole in the chassis meets the required specification.

(Supplement to the specification: the switch must turn ON while the top of the U groove of the E Stopper is between a point 0.5mm ahead of the round hole in chassis and a point 0.5mm behind of the round hole.)

Adjustment procedure:

- (1) Loosen the fixing screw of the Eject Switch Adjustment Bracket about 1/2 to 1 turn.
- (2) Insert a flatblade screwdriver (2mm dia.) into the adjusting hole and adjust the position of the Eject Switch Adjustment Bracket so that it meets the required specification.



5-6. PC-22 BOARD MOUNTING POSITION ADJUSTMENT

. This adjustment is required when the Photo Interrupter of the PC-22 Board is replaced.

Mode: Unthreading end

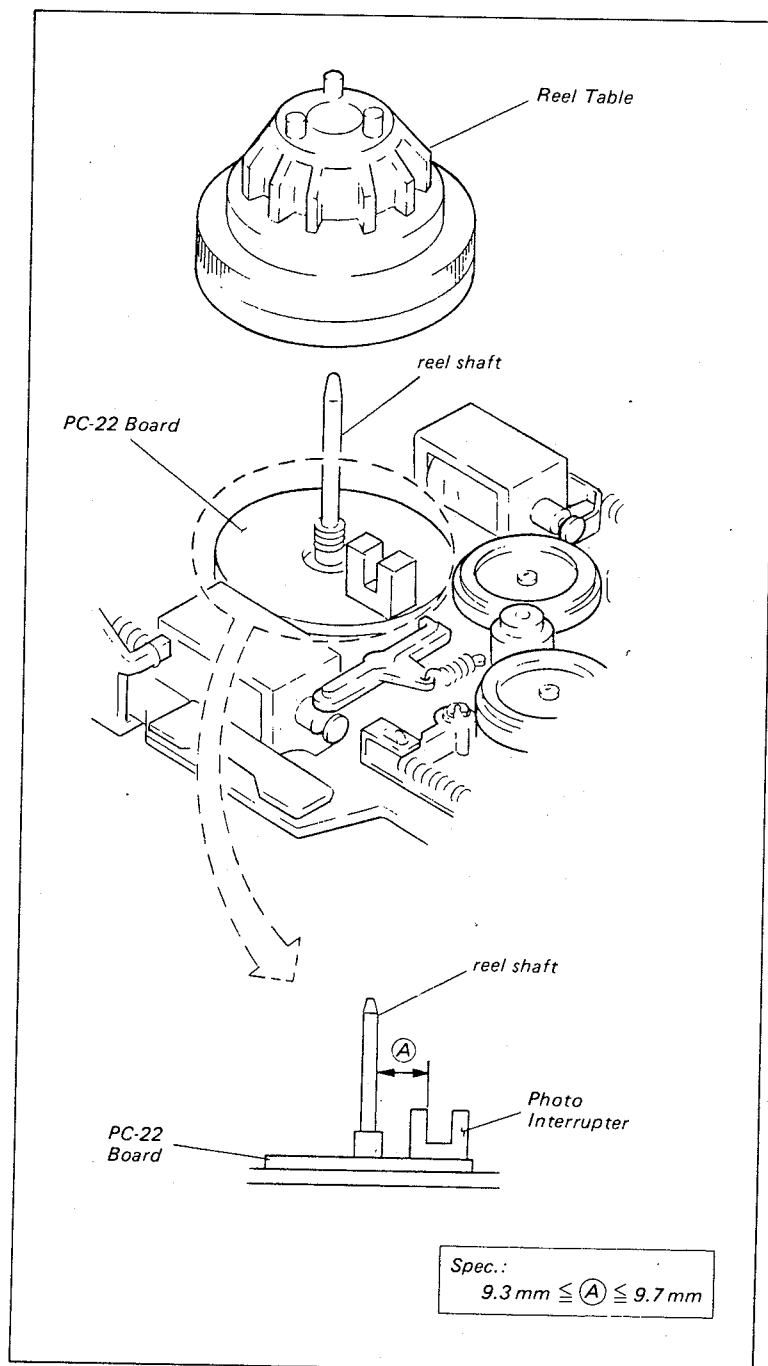
Tool: Scale

Check procedure:

- (1) Check that the distance (shown in the figure) between the outside of the reel shaft and the Photo Interrupter meets the required specification.

Adjustment procedure:

- (1) Adjust the mounting position of PC-22 Board to meet the required specification.



5-7. THREADING SYSTEM ADJUSTMENT

5-7-1. Threading Ring Rotation Adjustment

- . This adjustment is required when the Threading Ring or Ring Support is replaced.

Mode:

- (1) Turn the Threading Ring until the ring is turned back 180 degrees from the unthreading-end state.

Check procedure:

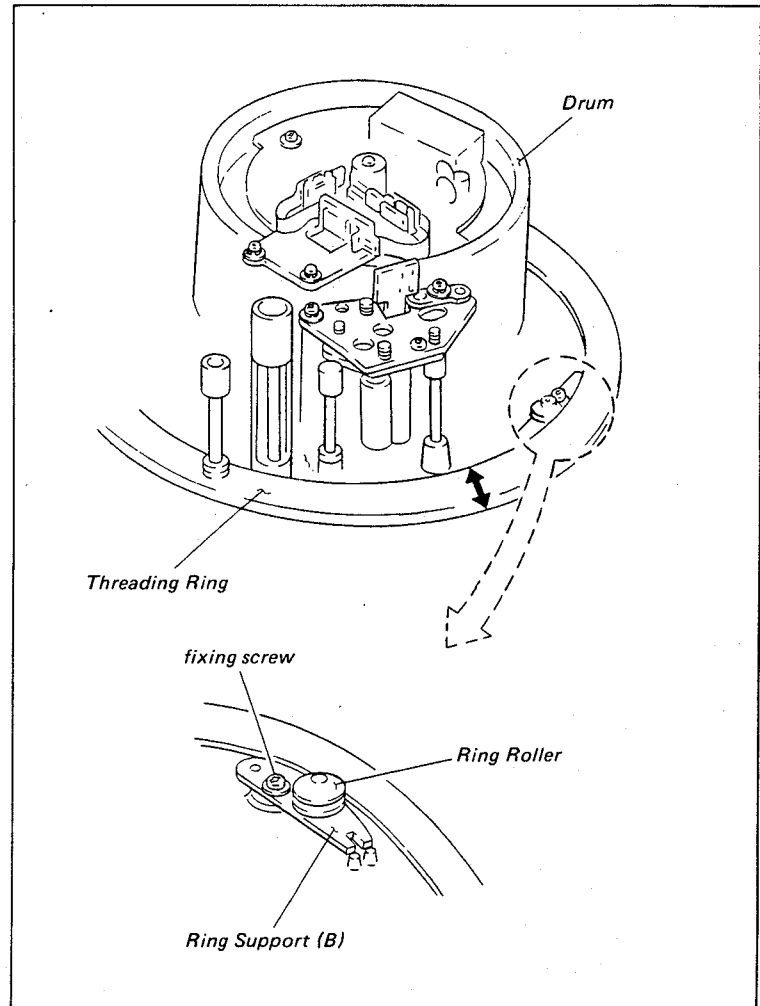
- (1) Check that the horizontal play exists when the Threading Ring is pushed by hand in the direction of the arrow.
- (2) Check that the rotation of the Threading Ring into the threading mode and the unthreading mode is smooth.

Adjustment procedure:

- (1) Adjust the position of the Ring Support (B) Assy to meet the required specification.

Adjusting procedure;

- . Insert a 0.2mm thick piece of paper between the Threading Ring and the Ring Roller.
- . The paper of this manual is about 0.1mm thick; therefore two sheets would be 0.2 mm thick.



5-7-2. Threading Ring Engaging Adjustment

Mode: Unthreading end

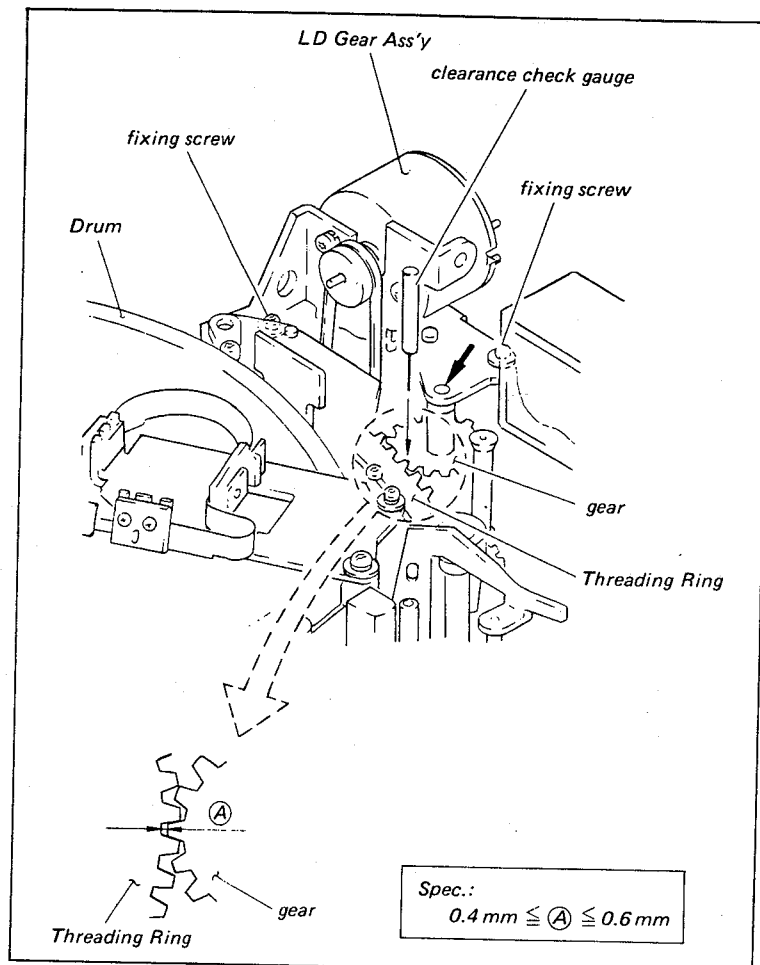
Tool: 0.5mm dia. clearance check gauge

Check procedure:

- (1) Check that the clearance between the Threading Ring and the gear of the gear box meets the required specification.

Adjustment procedure:

- (1) Loosen the fixing screws of the gear box about 1 to 2 turns.
- (2) Insert the 0.5mm dia. clearance check gauge between the Threading Ring and the gear of the gear box.
- (3) Press the gear box lightly toward the Threading Ring.
- (4) Tighten the fixing screws of the gear box, and check that the clearance meets the required specification.



5-7-3. Threading/Unthreading Switch Position Adjustment

Mode:

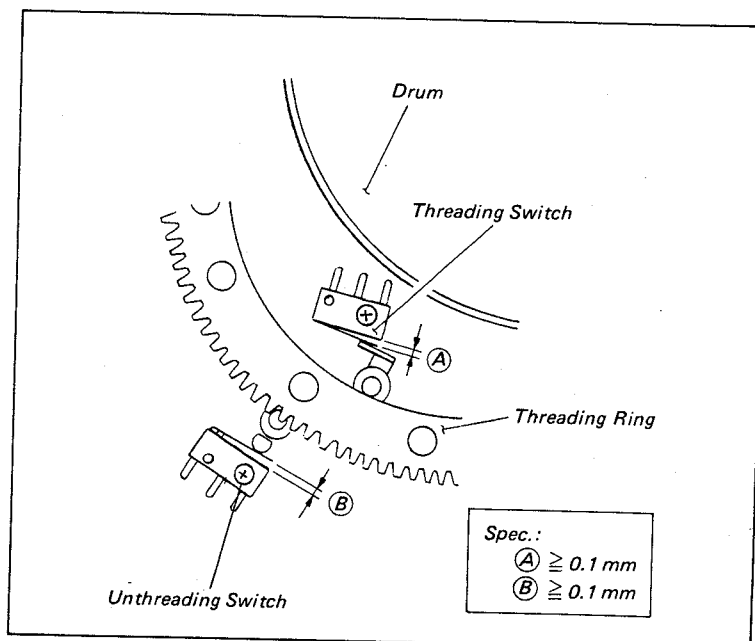
- (1) Turn the LD Pulley of the gear box block from the unthreading-end state until the Unthread End Switch is turned ON.

Check procedure:

- (1) Check that the clearances (A) and (B) between the micro switch and the actuators meet the required specifications.

Adjustment procedure:

- (1) Adjust the position of each micro switches to meet the required specifications.



5-7-4. Threading Ring Stop Position Adjustment

Mode: Threading end

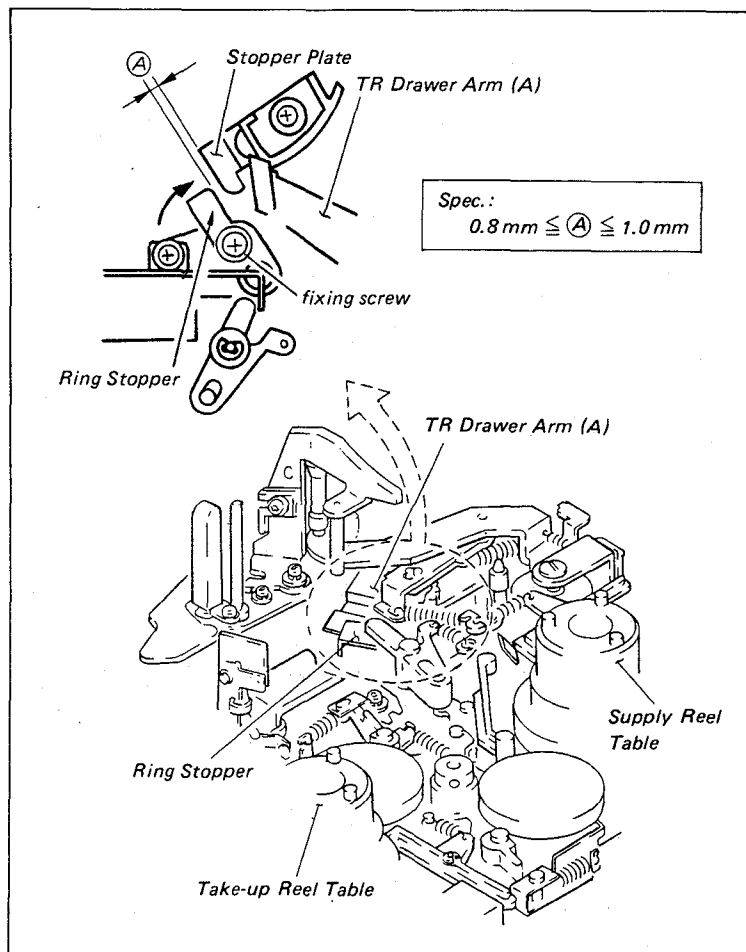
Tool: Thickness gauge

Check procedure:

- (1) Turn the pulley of the gear box block by hand in the unthreading direction until the belt slips.
- (2) Check that the clearance between the Stopper Plate and the Ring Stopper meets the required specification.

Adjustment procedure:

- (1) Loosen the fixing screw of the Ring Stopper about 1 turn.
- (2) Move the Ring Stopper in the direction of the arrow so that it meets the required specification.



5-7-5. Tape Stopper Position Adjustment

Mode: Unthreading end

Tool: Thickness gauge

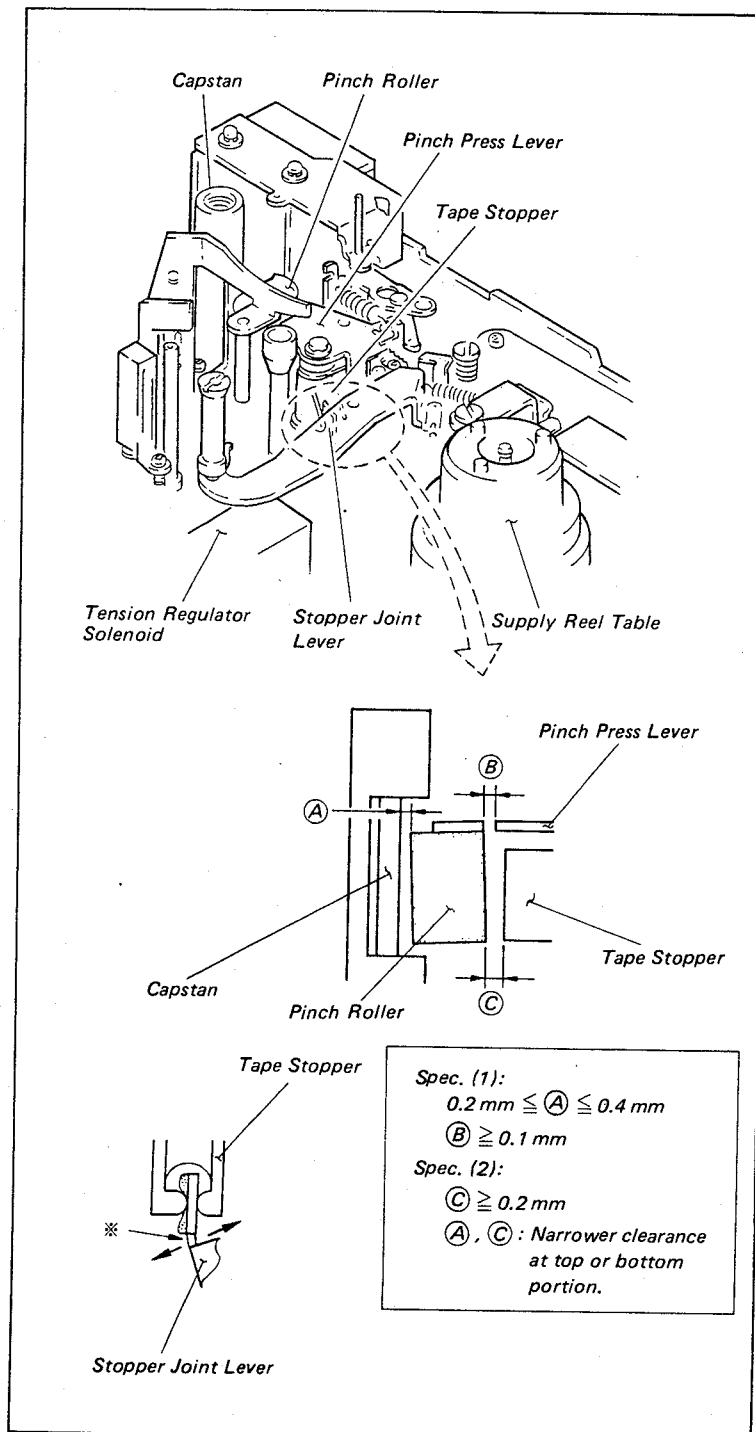
Check procedure:

- (1) Push the plunger of the Tension Regulator Solenoid in as far as possible by hand. Check that the clearance (A) between the Capstan and the Pinch Roller, and between the Pinch Roller Flange and the Pinch Press Lever meet the required specification. (Spec 1)
- (2) Push the plunger of the Tension Regulator and Pinch Solenoid to ON state in as far as possible by hand. Check that the clearance (C) between the Pinch Roller and the Tape Stopper. (Spec.2)

Adjustment procedure:

- (1) Push the plunger of the Tension Regulator Solenoid in as far as possible by hand.
- (2) Bend the ※ marked portion of the Stopper Joint Lever to meet the required specification.
- (3) Put the Pinch Solenoid into ON state.
- (4) Check Spec (2).

If it does not meet the required specification, repeat Steps (1) and (2) to meet the required specification.



5-8. S-TENSION REGULATOR ARM OPERATING POSITION ADJUSTMENT

5-8-1. S-tension Regulator Arm Operating Position Adjustment

Mode: Playback mode

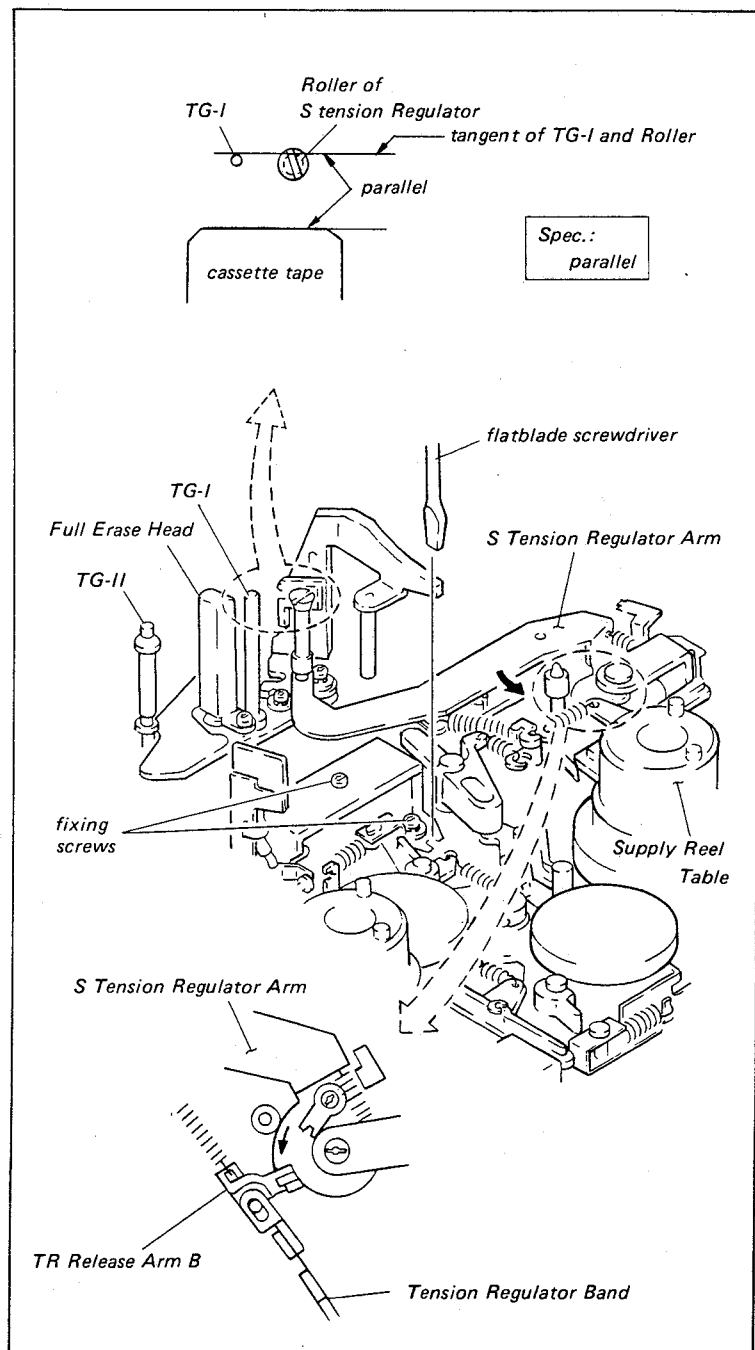
Tool: Cassette tape

Check procedure:

- (1) Insert the cassette tape, and put the machine into the PLAY mode. Check that the positional relationship between the roller of the S-tension Regulator Arm and TG-I meets the required specification.

Adjustment procedure:

- (1) Adjust the position of the Tension Regulator Solenoid to meet the required specification.



5-8-2. TR Stopper A Clearance Adjustment

Mode: PLAY mode without cassette tape

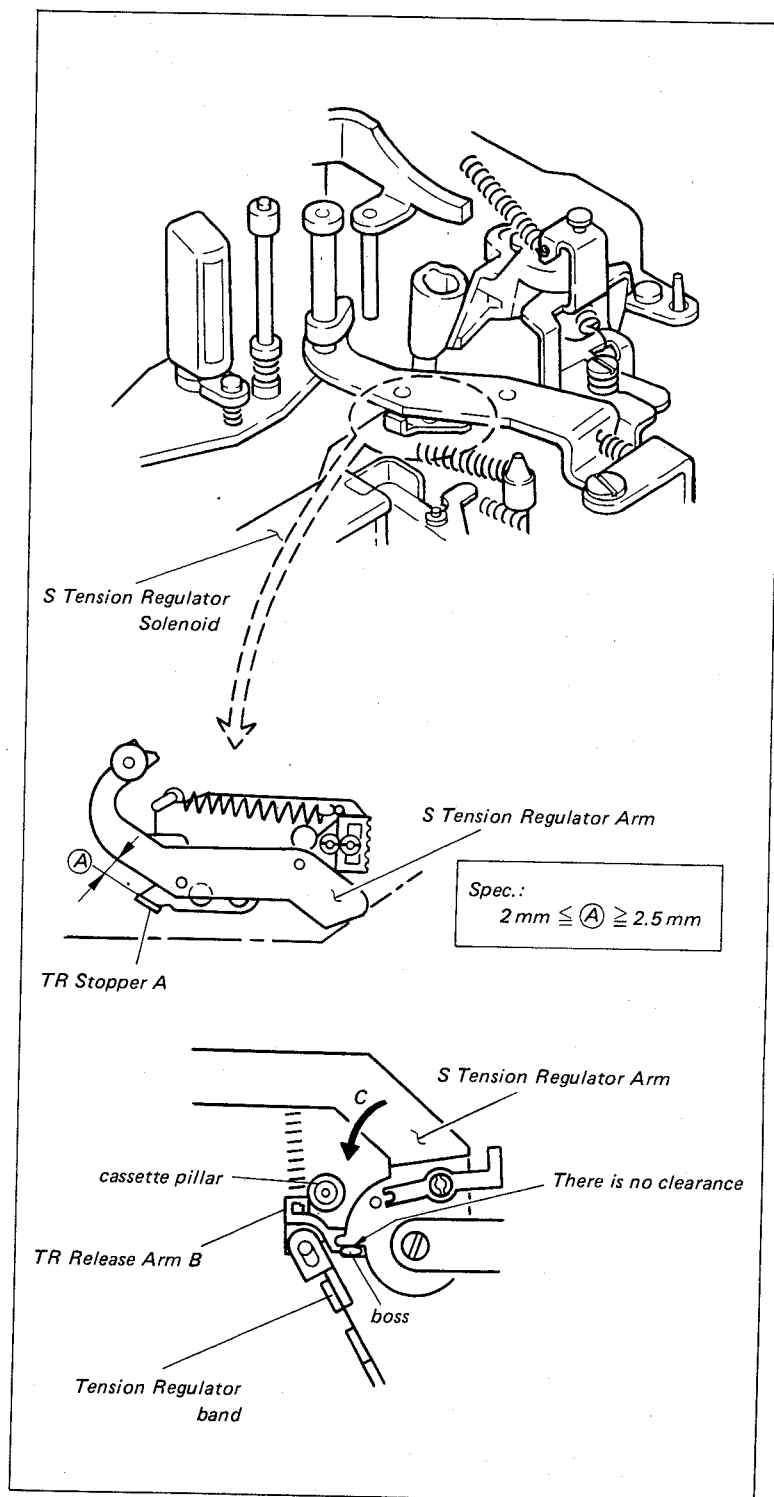
Tool: Thickness gauge

Check procedure:

- (1) Put the machine into the PLAY mode without a cassette tape.
- (2) Check that the iron core of the S Tension Regulator Solenoid is energized completely.
- (3) Move the S Tension Regulator Arm in the direction of the arrow C with figure so that the S Tension Regulator Arm contacts the boss of the TR Release Arm (B).
- (4) Check that the clearance between the S Tension Regulator Arm and the TR Stopper A meets the required specification.

Adjustment procedure:

- (1) Put the machine into STOP mode.
- (2) Loosen the fixing screw of the TR Stopper A about 1/4 to 1/2 turn.
- (3) Move the TR Stopper A to meet the required specification.
- (4) Put the machine into the PLAY mode without cassette tape, and check that the clearance meets the required specification.



5-9. PINCH PRESS MECHANISM BLOCK ADJUSTMENT

5-9-1. Pinch Press Mechanism Block Position Adjustment

Mode: PLAY mode without a cassette tape

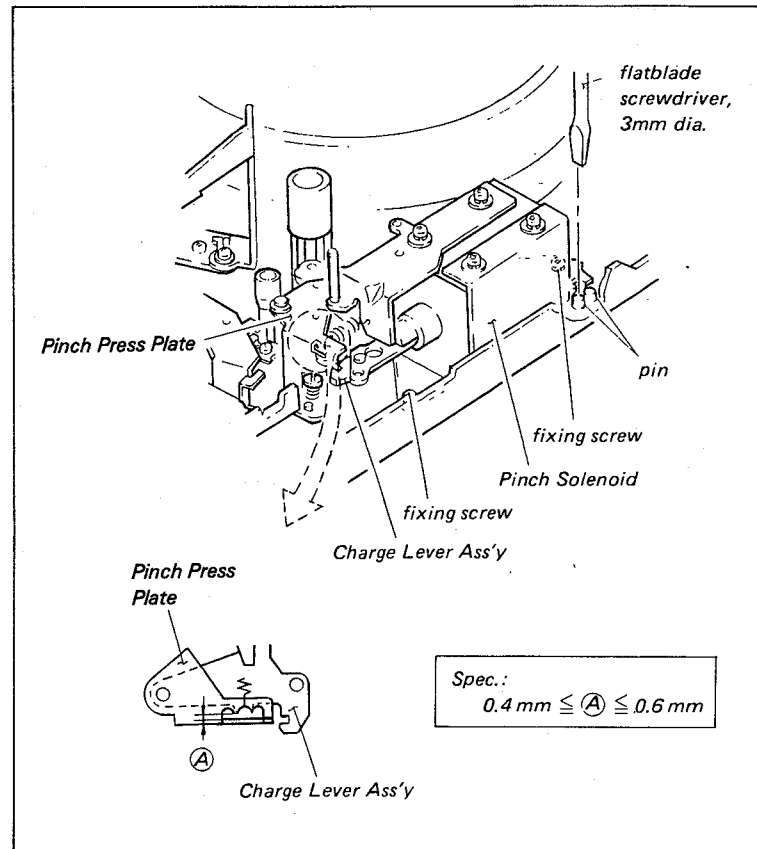
Tool: Thickness gauge

Check procedure:

- (1) Put the machine into the PLAY mode without a cassette tape.
- (2) Check that the clearance between the Pinch Press Plate and Charge Lever meets the required specification.

Adjustment procedure:

- (1) Loosen the fixing screws of the Pinch Press Mechanism Block about 1/2 to 1 turn.
- (2) Insert a flatblade screwdriver (3mm dia.) into the notch of the Pinch Press Mechanism Block, and adjust the Pinch Press Mechanism Block position to meet the required specification.



5-9-2. PM Arm Clearance Adjustment

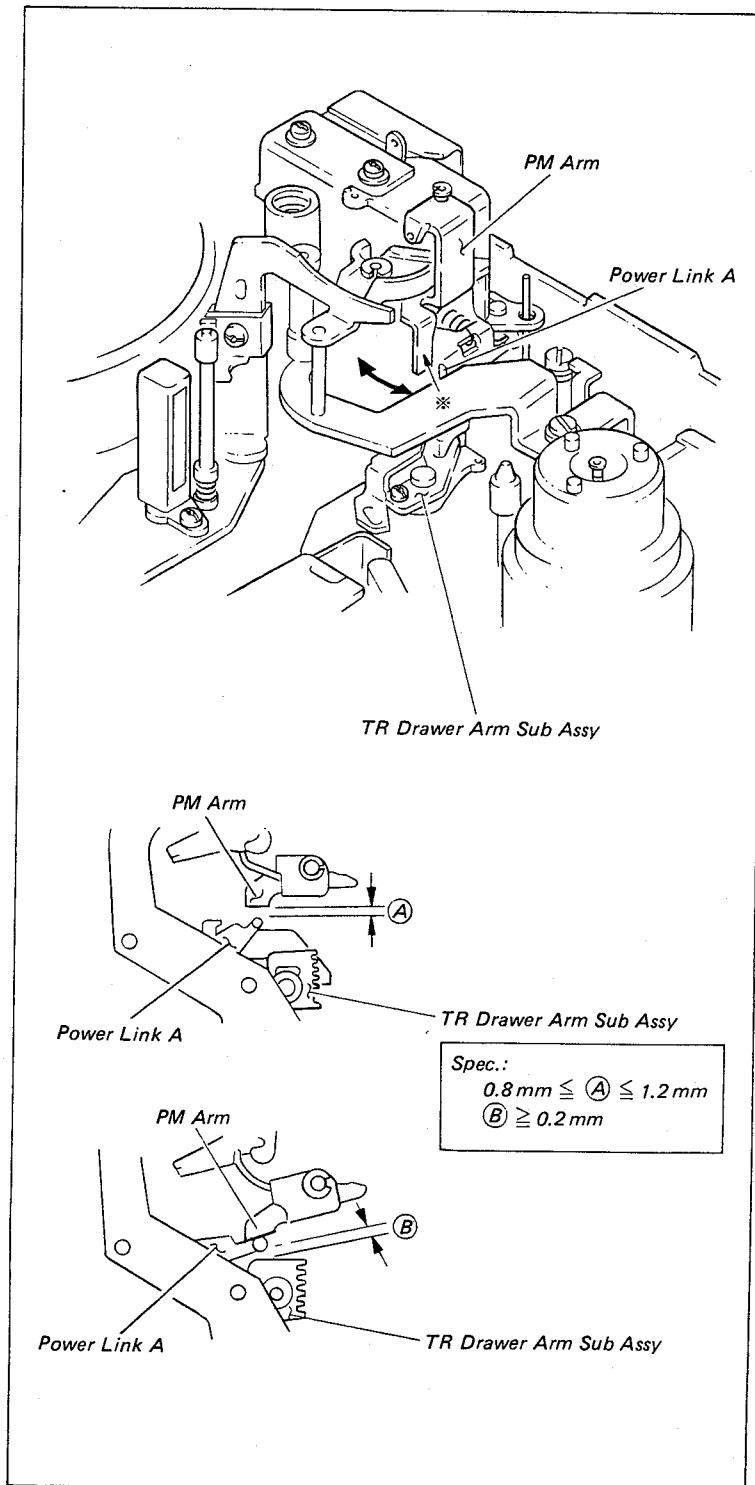
Mode: Threading end mode to PLAY mode

Check procedure:

- (1) Put the machine into the threading-end mode.
- (2) Check that the Pinch Solenoid is not energized.
- (3) Check that the clearance (A) between the PM Arm and the Power Link A of the TR Drawer Arm Sub Assy meets the required specification.
- (4) Put the machine into the PLAY mode.
- (5) Check that the Pinch Solenoid is energized.
- (6) Check that the clearance (B) between the TR Drawer Arm B and the Power Link A meets the required specification.

Adjustment procedure:

- (1) Put the machine into the unthreading-end mode.
- (2) Bend the ※ portion of the PM Arm.
- (3) Check as check procedure, check that the clearances (A) and (B) meet the required specification.



5-10. E SLIDER ADJUSTMENT

5-10-1. E Slider Position Adjustment

Mode: Threading end

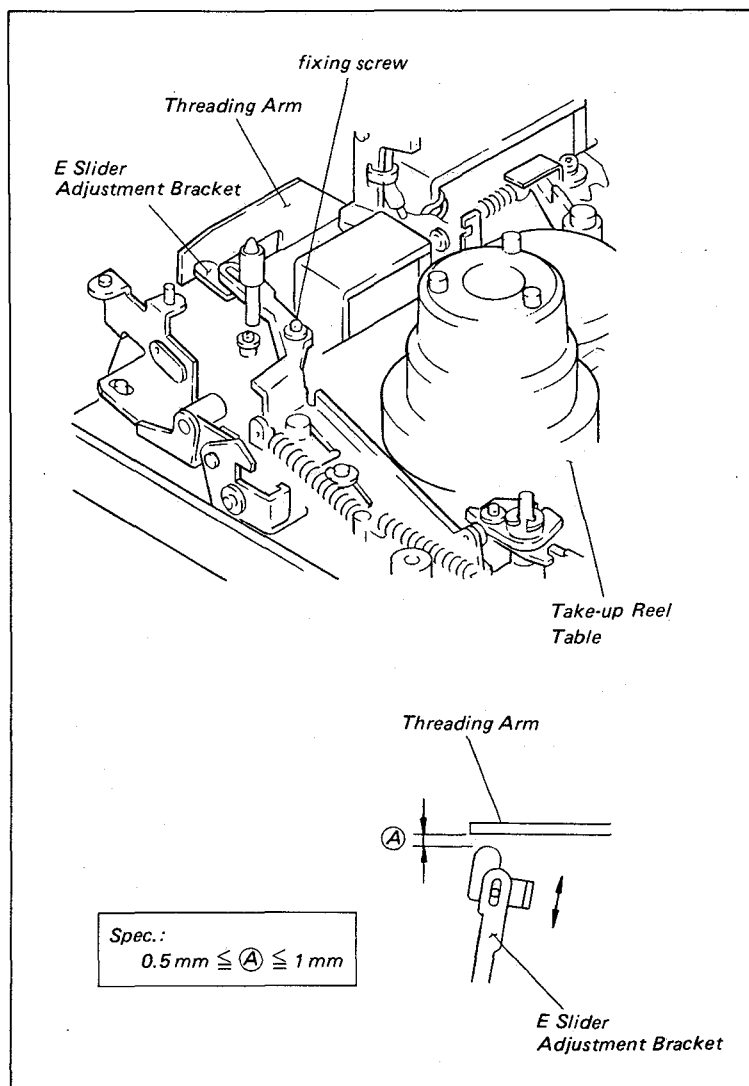
Tool: Thickness gauge

Check procedure:

- (1) Check that the clearance between the Threading Arm and the E Slider Adjustment Bracket meets the required specification.

Adjustment procedure:

- (1) Loosen the fixing screws of the E Slider Adjustment Bracket about 1/2 to 1 turn.
- (2) Adjust the position of the E Slider Adjustment Bracket to meet the required specification.



5-10-2. E Slide Stopper Position Adjustment

Mode: Unthreading end

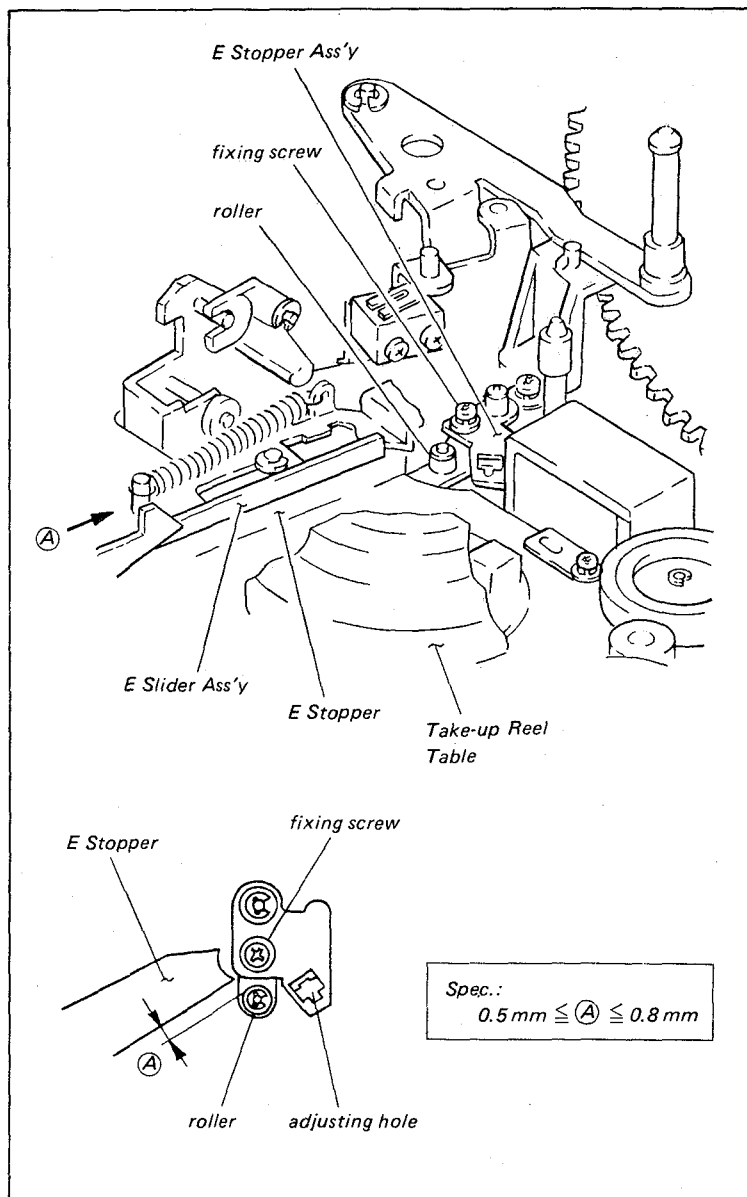
Tool: Thickness gauge

Check procedure:

- (1) Press slowly on the EJECT button, and move the E Slider Assy in the direction of arrow A. Check that the clearance between the roller and the E Stopper meets the required specification.

Adjustment procedure:

- (1) Loosen the fixing screw of the E Stopper Assy about 1/2 to 1 turn.
- (2) Insert a flatblade screwdriver (2mm dia.) into the adjusting hole and adjust the E Stopper Assy position so that it meets the required specification.
- (3) Turn the pulley of the gear box block by hand. After advancing the Threading Ring about 10mm, tighten the fixing screw.
- (4) After tightening, check again.



5-11. BAND HOLDER MOUNTING POSITION ADJUSTMENT

Mode: Unthreading end

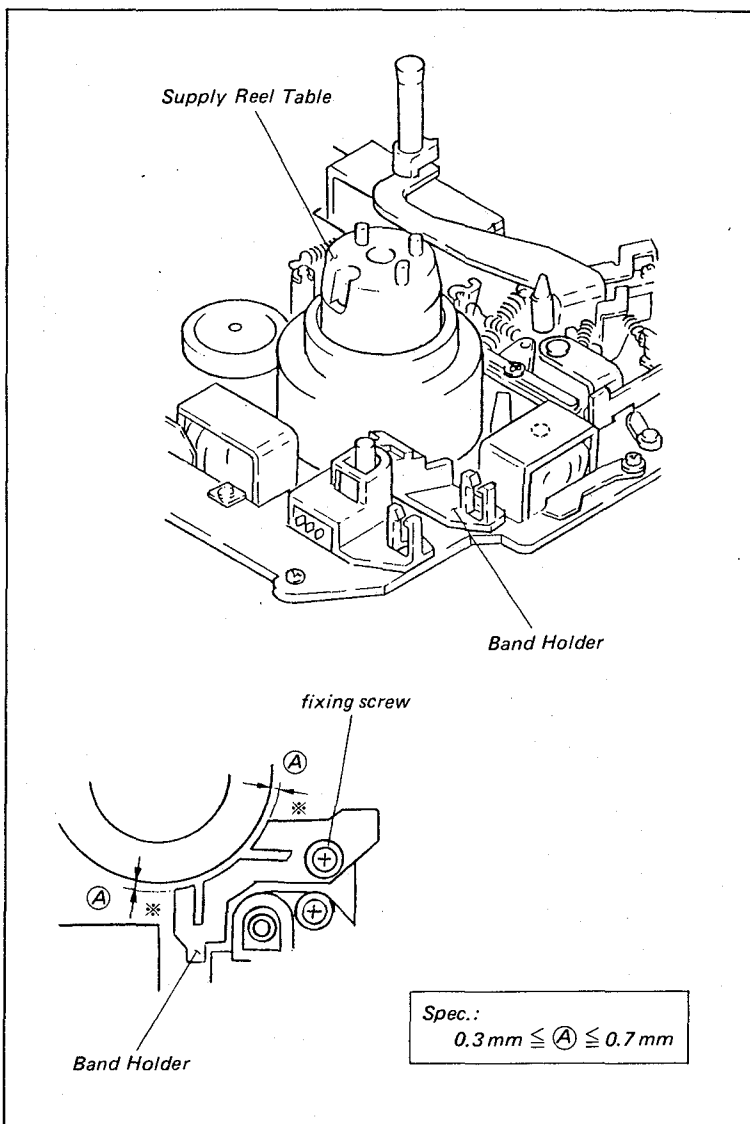
Tool: Thickness gauge

Check procedure:

- (1) Check that the clearances between the ※ marked portions (two spots) of the Band Holder and the Supply Reel Table meet the required specification.

Adjustment procedure:

- (1) Adjust the position of the Band Holder to meet the required specification.



5-12. DAMPER POSITION ADJUSTMENT OF CASSETTE-UP COMPARTMENT

. This adjustment is performed with Cassette-up Compartment removed from the unit.

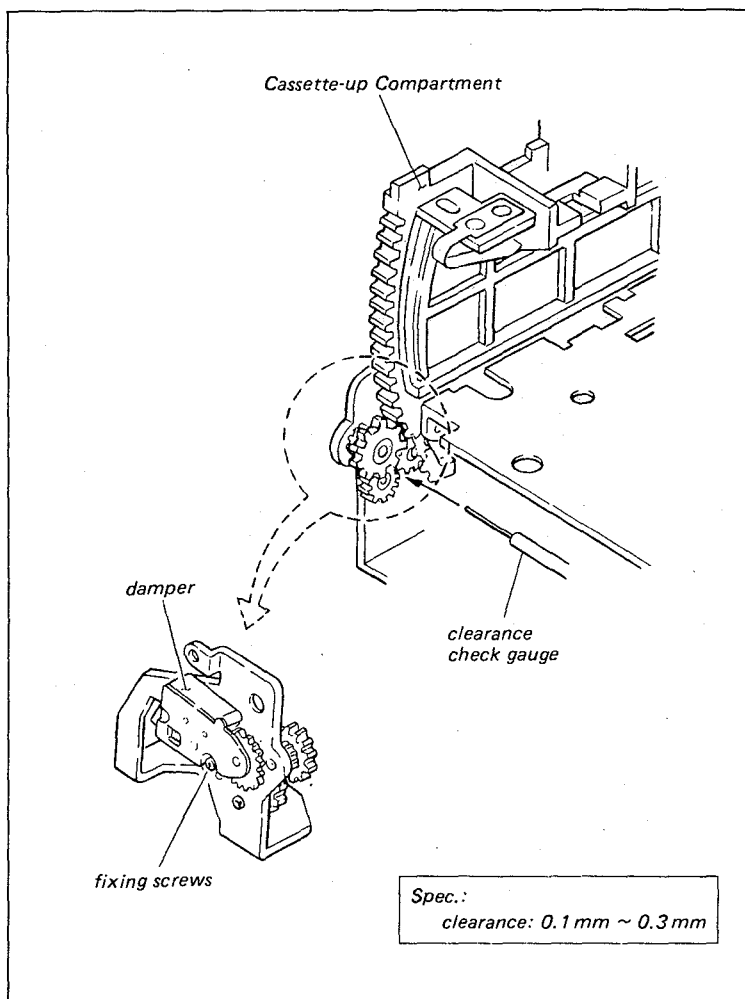
Tool: Clearance check gauge

Check procedure:

- (1) Check that the clearance between the gear of the Cassette-up Compartment and the gear of the Damper Block meets the required specification.

Adjustment procedure:

- (1) Adjust the position of the Damper Block to meet the required specification.



5-13. CASSETTE LID OPENER BRACKET POSITION ADJUSTMENT

Mode: Unthreading end

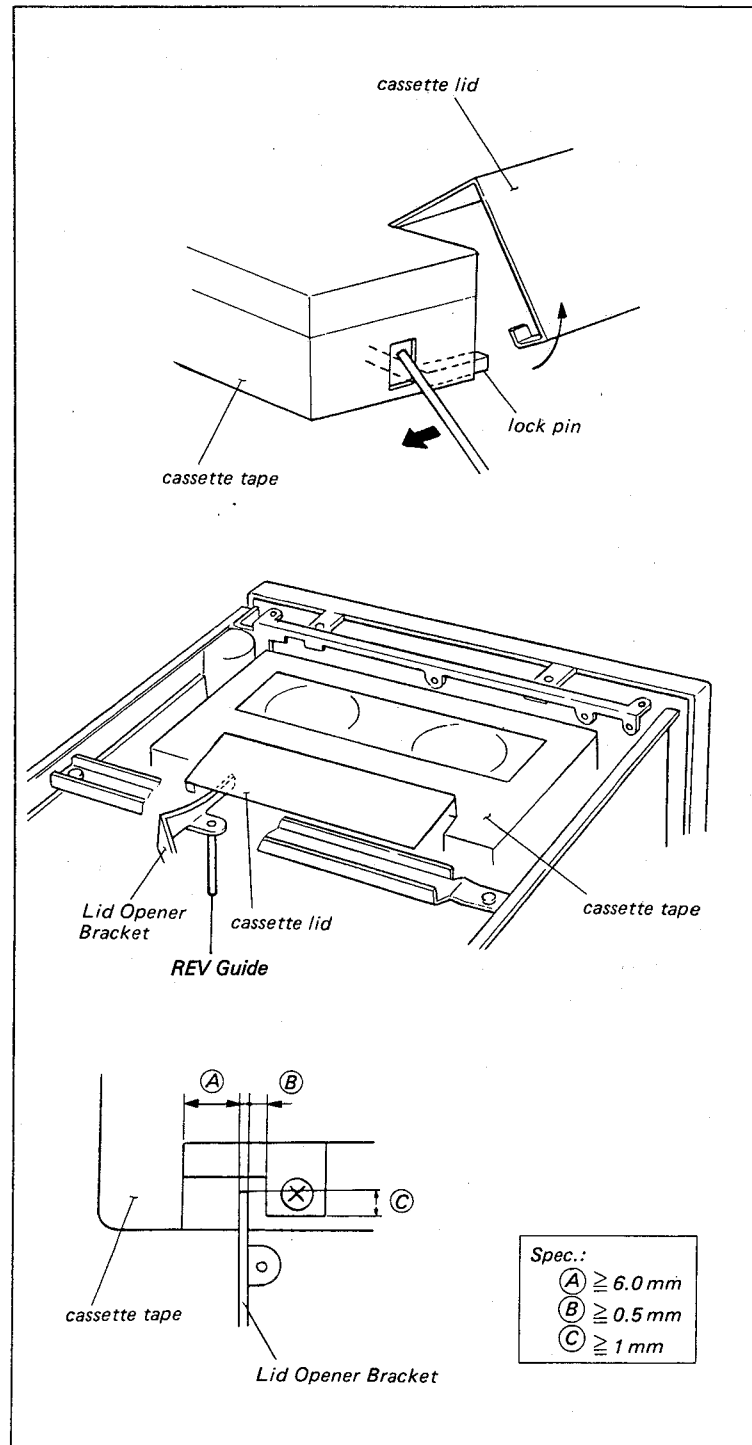
Tool: Cassette tape

Check procedure:

- (1) Release the lock of the cassette lid, and open the lid.
- (2) Insert the cassette tape in the Cassette-up Compartment and lower the Compartment.
- (3) Check that the positional relationship between the Lid Opener Bracket and the groove of the cassette tape meets the required specification.

Adjustment procedure:

- (1) Adjust the mounting position of the Lid Opener Bracket to meet the required specification.
- (2) If they do not meet the required specification in Step (1), bend the Lid Opener Bracket. After this adjustment, the REV Guide Slantness Adjustment must be performed in Section 7-2.



SECTION 6

TORQUE AND BACK TENSION ALIGNMENT

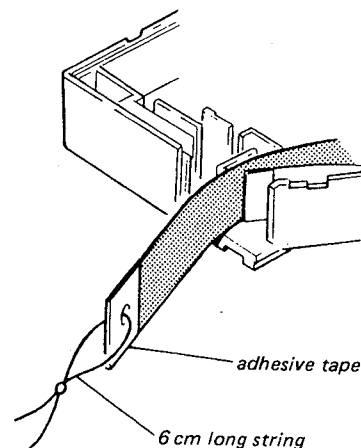
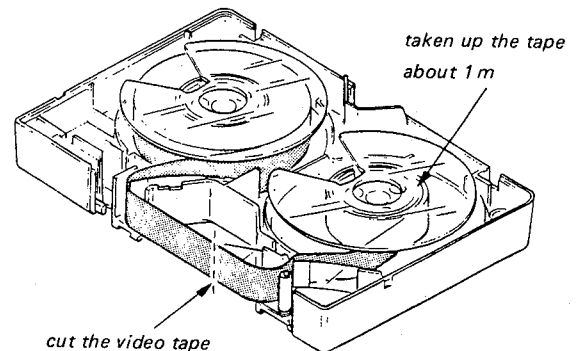
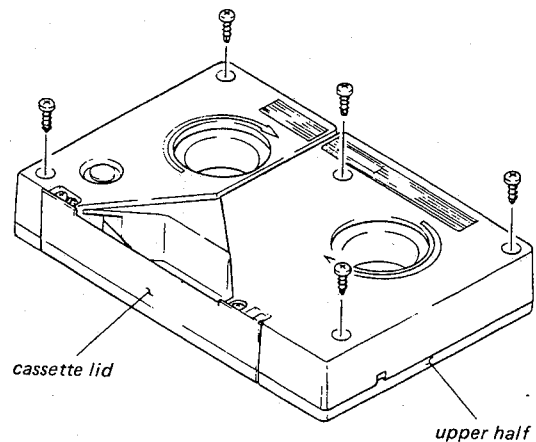
ALIGNMENT INFORMATION

- Local specially-made Cassette Tape for the PLAY Back Tension Adjustment.

This cassette tape is used for the PLAY Back Tension Adjustment.

Prepare this tape as follows:

- (1) Wind the KSP-S-20 cassette tape to the tape beginning portion.
- (2) Remove the five screws on back of the cassette tape, and remove the Upper Half of the cassette.
- (3) Taken up the video tape on the take-up reel about 1 meter. Cut the video tape at the position as shown in the figure. Remove the take-up reel from the cassette.
- (4) Attach an adhesive tape on an end of the hole on the adhesive tape.
- (5) Make a loop of 6cm long string through the hole.



6-1. SOFT BRAKE SYSTEM ADJUSTMENT

6-1-1. Take-up Soft Brake Torque Adjustment

Mode: Unthreading end

Tool: Reel table torque measurement jig
(40mm dia.)

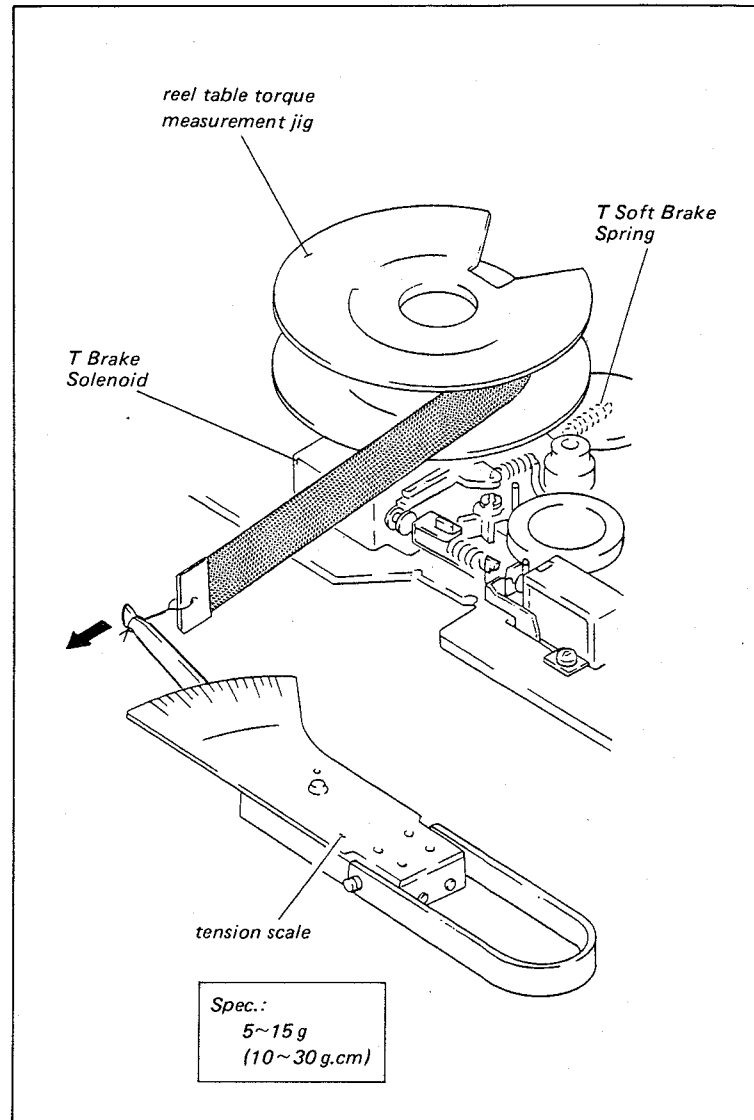
Tension scale (50g full scale)

Check procedure:

- (1) Wind the tape in the clockwise direction on the reel table torque measurement jig.
- (2) Install the measurement jig on the Take-up Reel Table, and hook a tension scale on the end of the tape.
- (3) Push the plunger of the T Brake Solenoid in as far as possible by hand.
(Hold it in place, the fully engaged position.)
- (4) In the fully engaged position, pull the tension scale at a constant speed of approx. 10cm/sec. in the direction of the arrow, as shown in the figure. Check that the scale reading meets the required specification.

Adjustment procedure:

- (1) Replace the T Soft Brake, or adjust it by straightening or cutting off the spring of the Soft Brake.



6-1-2. S Soft Brake Torque Adjustment

Mode: Unthreading end

Tool: Reel table torque measurement jig
(40mm dia.)

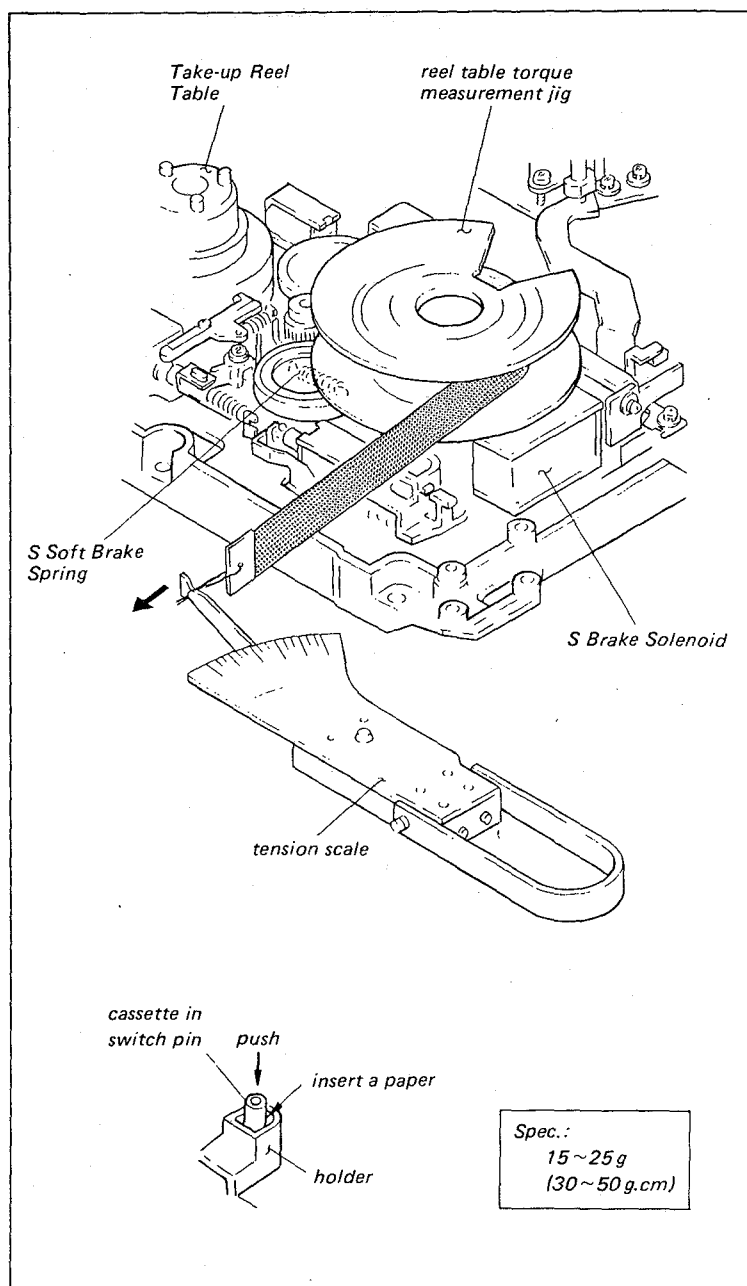
Tension scale (50g full scale)

Check procedure:

- (1) Push down the Cassette-in Switch Pin, and insert the paper between the Pin and the Holder so that the Pin does not rise up.
- (2) Wind the tape in the clockwise direction on the reel table torque measurement jig.
- (3) Install the measurement jig on the Supply Reel Table, and hook a tension scale on the end of the tape. Check that the Reel Hub does not contact with the paper that is inserted into Step (1).
- (4) Push the plunger of the S Brake Solenoid in as far as possible by hand. (Hold it in place, the fully engaged position.)
- (5) In the fully engaged position, pull the tension scale at a constant speed of approx. 10cm/sec. in the direction of the arrow, as shown in the figure. Check that the scale reading meets the required specification.

Adjustment procedure:

- (1) Replace the S Soft Brake, or adjust it by straightening or cutting off the spring of the Soft Brake.



6-2. MAIN BRAKE SYSTEM ADJUSTMENT

6-2-1. Take-up Main Brake Torque Adjustment

Mode: Unthreading end

Tool: Reel table torque measurement jig
(40mm dia.)

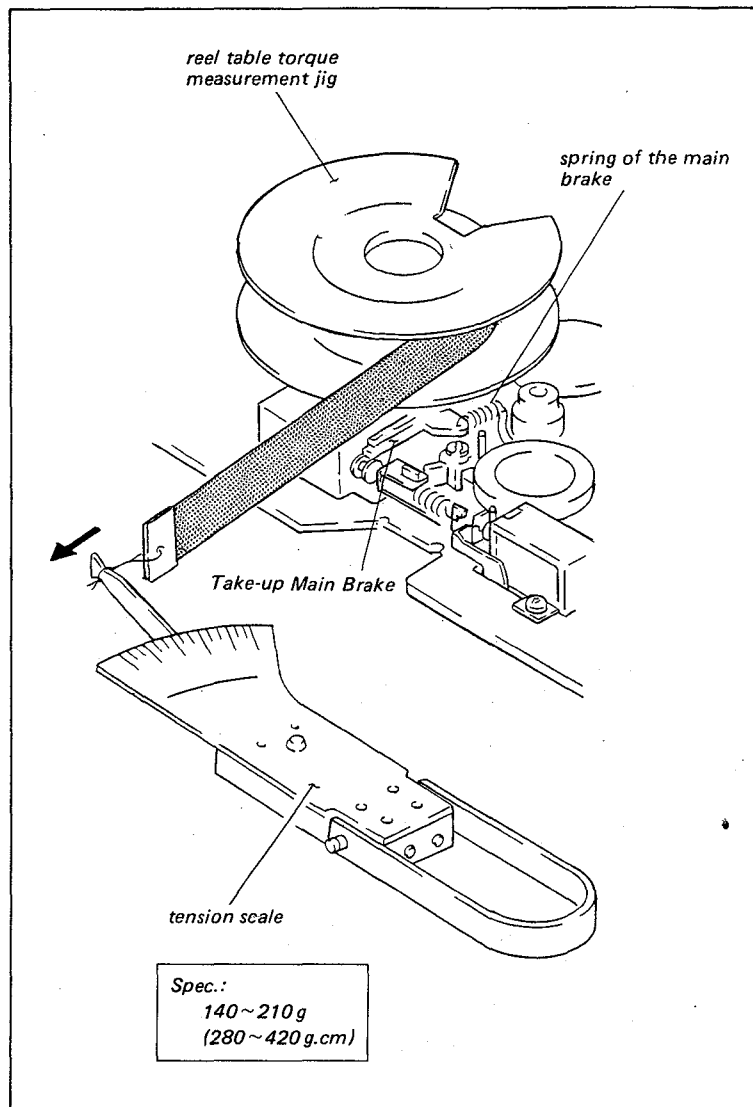
Tension scale (500g full scale)

Check procedure:

- (1) Wind the tape in the clockwise direction on the reel table torque measurement jig.
- (2) Install the measurement jig on the Take-up Reel Table, and hook a tension scale on the end of the tape.
- (3) Pull the tape at a constant speed of approx. 10cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification.

Adjustment procedure:

- (1) Replace the Take-up Main Brake, or adjust it by straightening or cutting off the spring of the Main Brake.



6-2-2. Supply Main Brake Torque Adjustment

Mode: Unthreading end

Tool: Reel table torque measurement jig
(40mm dia.)

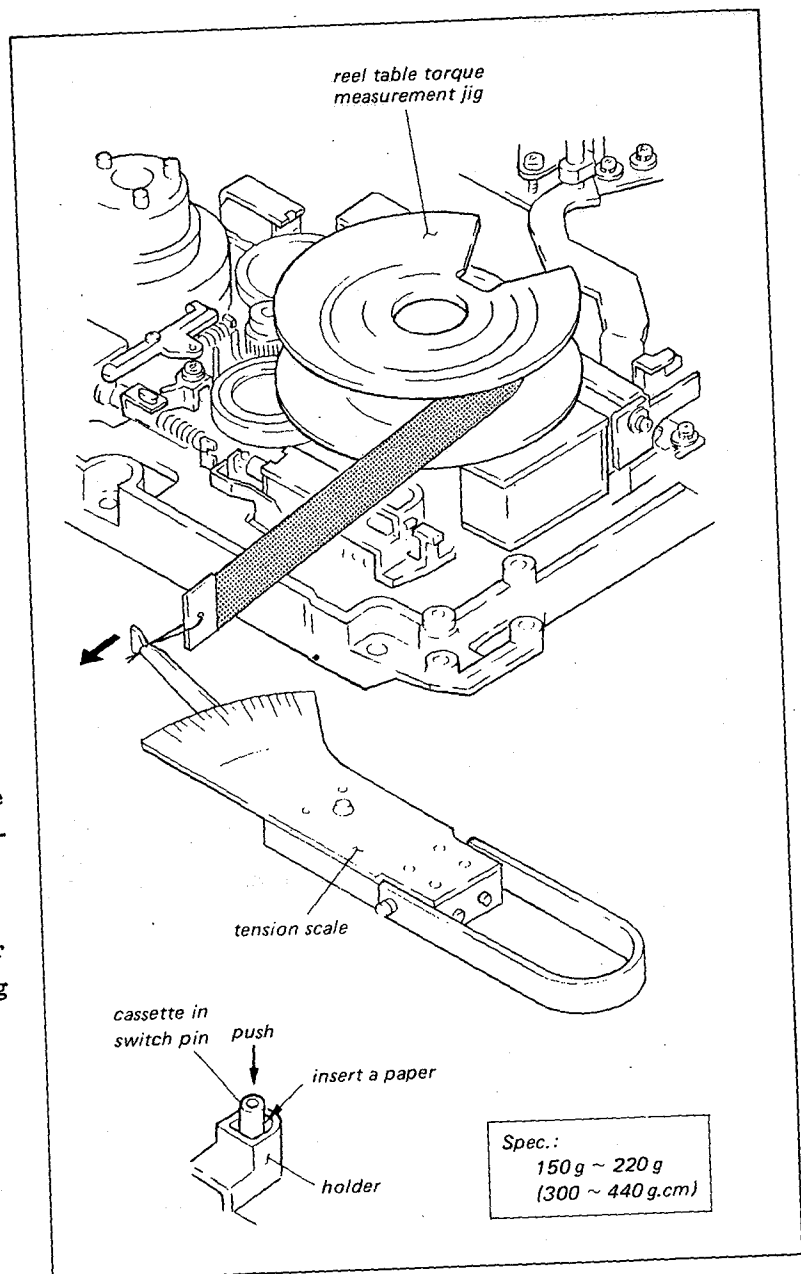
Tension scale (500g full scale)

Check procedure:

- (1) Push down the Cassette-in Switch Pin, and insert the paper between the Pin and the Holder so that the Pin does not rise up.
- (2) Wind the tape on the reel table torque measurement jig in the clockwise direction.
- (3) Install the measurement jig on the Supply Reel Table, and hook a tension scale on the end of the tape. Check that the Reel Hub does not contact with the paper that is inserted into Step (1).
- (4) Pull the tape at a constant speed of approx. 10cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification.

Adjustment procedure:

- (1) Replace the Supply Main Brake, or adjust it by straightening or cutting off the spring of the main brake.



6-2-2. Supply Main Brake Torque Adjustment

Mode: Unthreading end

Tool: Reel table torque measurement jig
(40mm dia.)

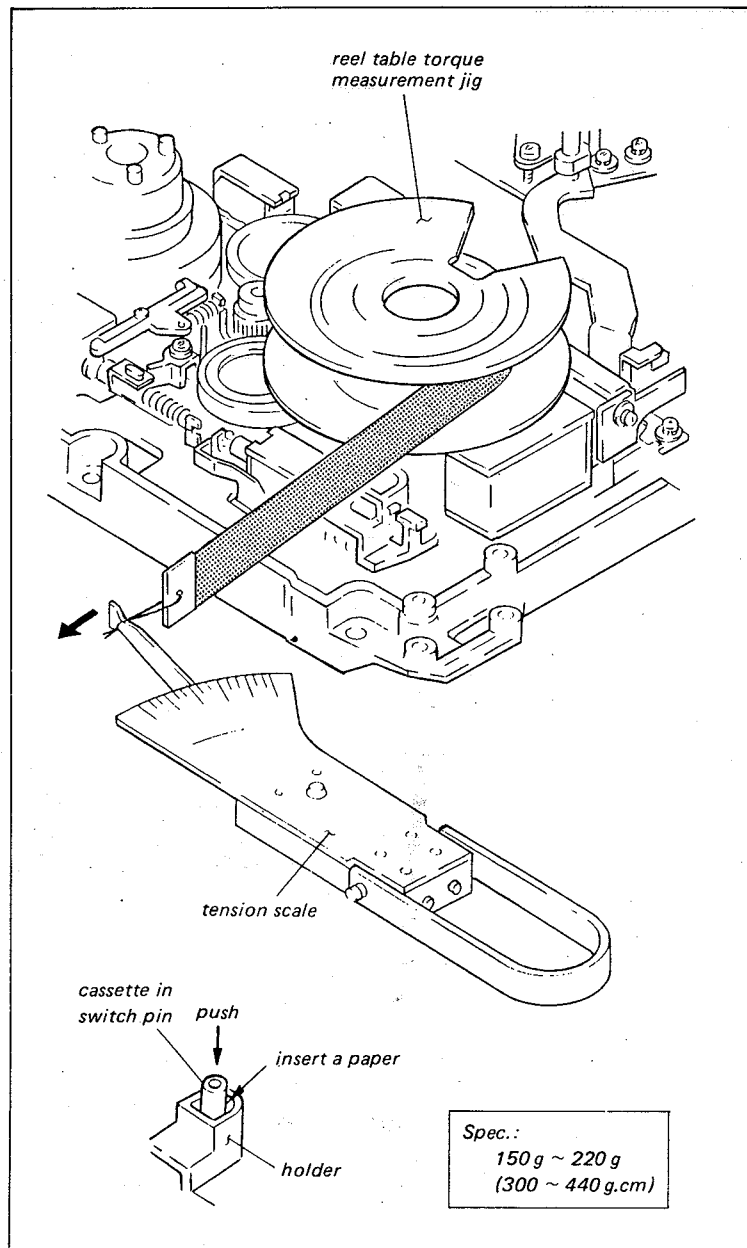
Tension scale (500g full scale)

Check procedure:

- (1) Push down the Cassette-in Switch Pin, and insert the paper between the Pin and the Holder so that the Pin does not rise up.
- (2) Wind the tape on the reel table torque measurement jig in the clockwise direction.
- (3) Install the measurement jig on the Supply Reel Table, and hook a tension scale on the end of the tape. Check that the Reel Hub does not contact with the paper that is inserted into Step (1).
- (4) Pull the tape at a constant speed of approx. 10cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification.

Adjustment procedure:

- (1) Replace the Supply Main Brake, or adjust it by straightening or cutting off the spring of the main brake.



6-3. PLAY BACK TENSION ADJUSTMENT

Mode: Threading end

Tool: Local specially-made cassette tape for the PLAY Back Tension Adjustment. (Refer to the alignment information.)

Tension scale (100g full scale)

Preparation:

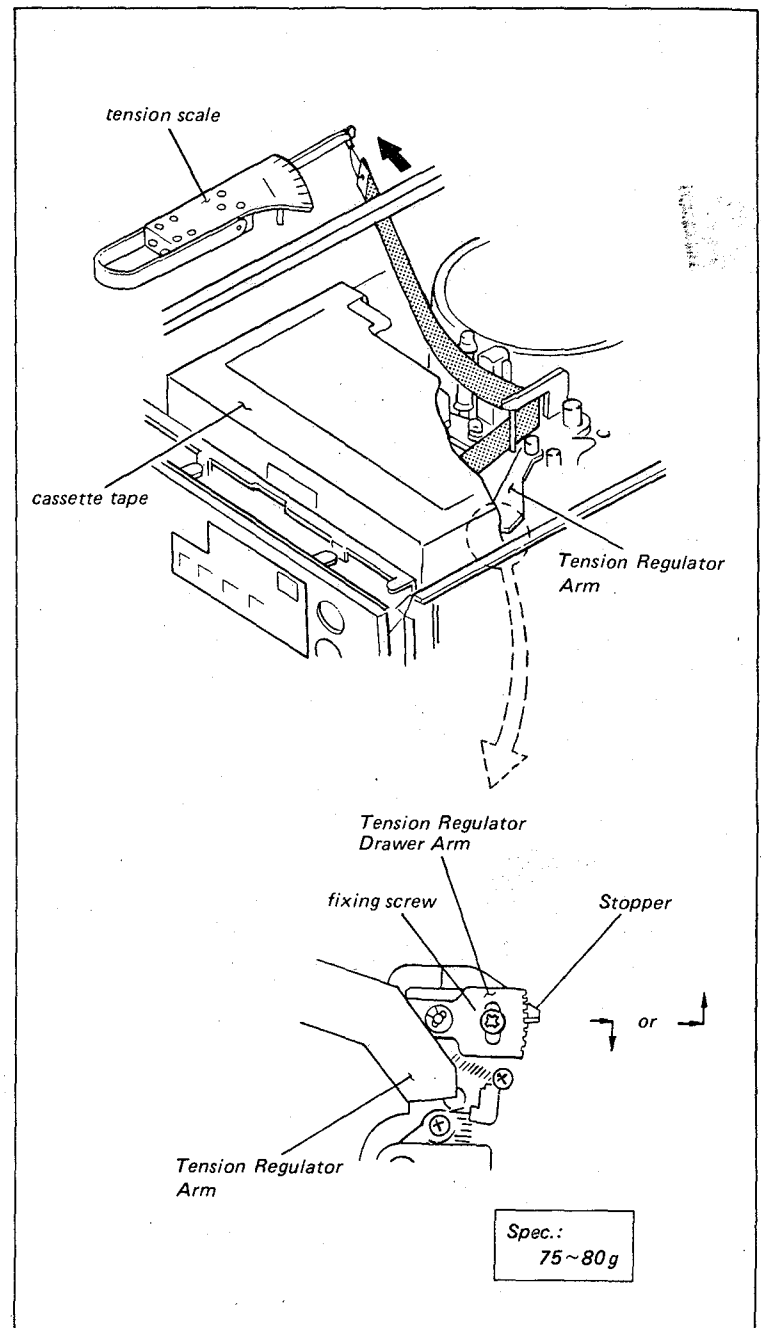
- (1) Short between TP4/SY Board and GND (frame) with a short clip lead. (Stop the function of the Tape Slack Detection Circuit)
- (2) Place the local specially-made cassette tape, and thread the tape as shown in the figure.
- (3) Hook the tension scale on the end of the tape.

Check procedure:

- (1) Put the machine into the PLAY mode.
- (2) Pull the tape at a constant speed of approx. 9cm/sec in the direction shown in the figure, and check that the scale reading meets the required specification.

Adjustment procedure:

- (1) Adjust the position of the stopper in the direction of the arrow so that it meets the required specification.



SECTION 7

TAPE RUN ALIGNMENT

7-1. S-TENSION REGULATOR ARM SLANTNESS ADJUSTMENT

Mode: Threading end (POWER OFF)

Tool: Reel table height check base jig

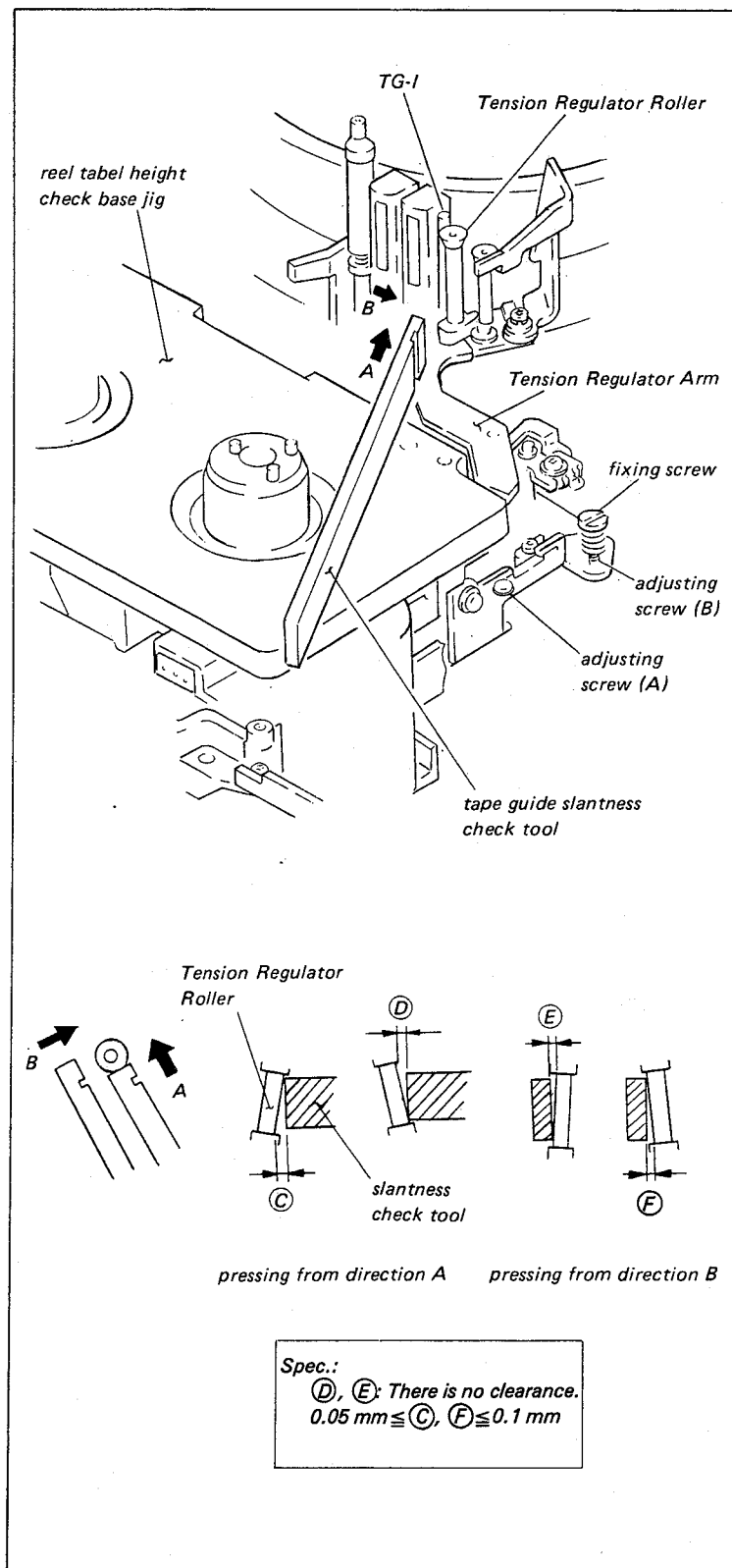
Tape guide slantness check tool

Check procedure:

- (1) Put the reel table height check base jig in the cassette's position.
- (2) Push and lock the EJECT button.
- (3) Turn the pulley of the gear box by hand so that the Tape Guide Roller of the S Tension Regulator Arm is to the right of TG-I.
- (4) Place the tape guide slantness check tool against the Tape Guide Roller from directions A and B, as shown in the figure. Check that the slantness of the guide roller meets the required specification.

Adjustment procedure:

- (1) Loosen the fixing screw about 1 turn.
 . When the slantness is out of spec. while pressing from direction A.
- (2) If there is a clearance at the top position, turn the adjusting screw (A) in the clockwise direction so that it meets the specification.
- (3) If there is a clearance at the bottom position, turn the adjusting screw (B) in the counterclockwise direction so that it meets the specification.
 . When the slantness is out of spec. while pressing from direction B.
- (4) If there is a clearance at the top position, turn the adjusting screw (B) in the clockwise direction so that it meets the specification.
- (5) If there is a clearance at the bottom position, turn the adjusting screw (A) in the counterclockwise direction so that it meets the specification.
- (6) Tighten the fixing screw, and check again.



7-2. REV GUIDE SLANTNESS ADJUSTMENT

Mode: Unthreading end

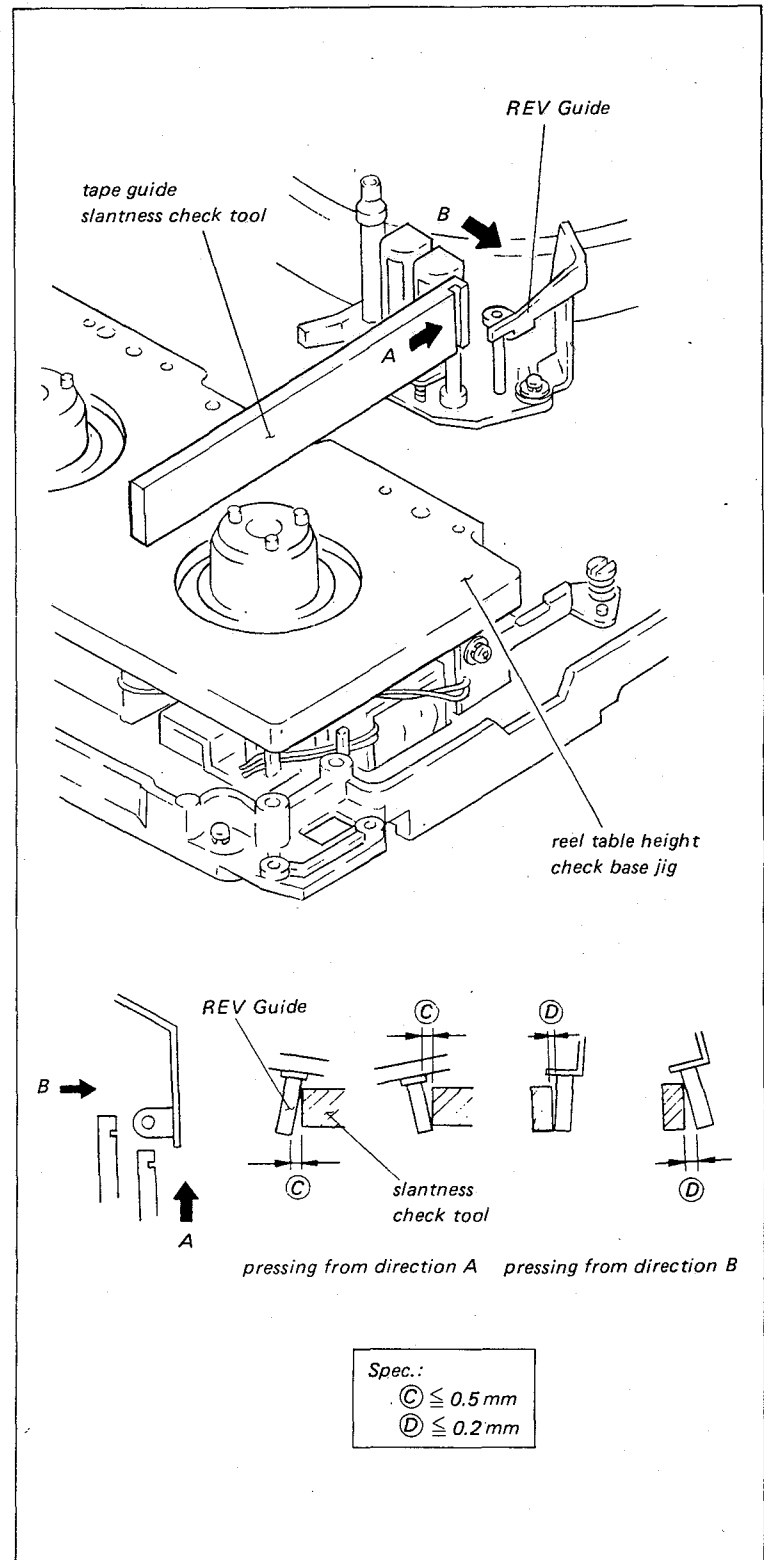
Tool: Reel table height check base jig
Tape guide slantness check tool

Check procedure:

- (1) Place the reel table height check base jig in the cassette's position.
- (2) Place the tape guide slantness check tool against the REV Guide, as shown in the figure. Check that the slantness meets the required specification.

Adjustment procedure:

- (1) Push the lower side of the REV Guide by hand until it meets the required specifications.



7-3. TU ARM SLANTNESS ADJUSTMENT

Mode: Threading end

Tool: Reel table height check base jig

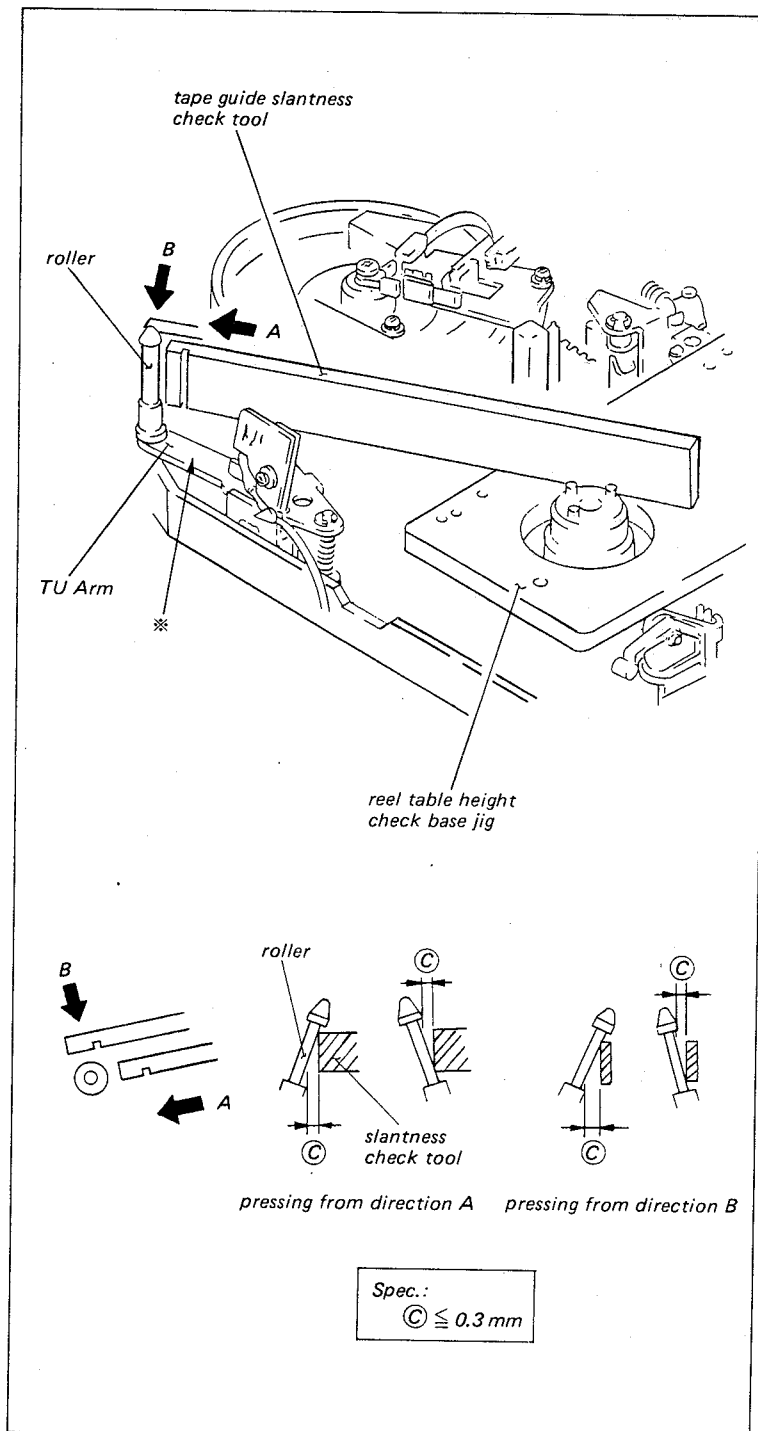
Tape guide slantness check tool

Check procedure:

- (1) Place the reel table height check base jig in the cassette's position.
- (2) Place the tape guide slantness check tool against the roller of the TU Arm as shown in the figure. Check that the slantness meets the required specification.

Adjustment procedure:

- (1) Bend the ※ marked portion of the TU Arm so that it meets the required specification.



7-4. TU ARM ROLLER GUIDE HEIGHT ADJUSTMENT

Mode: PLAY and F.FWD

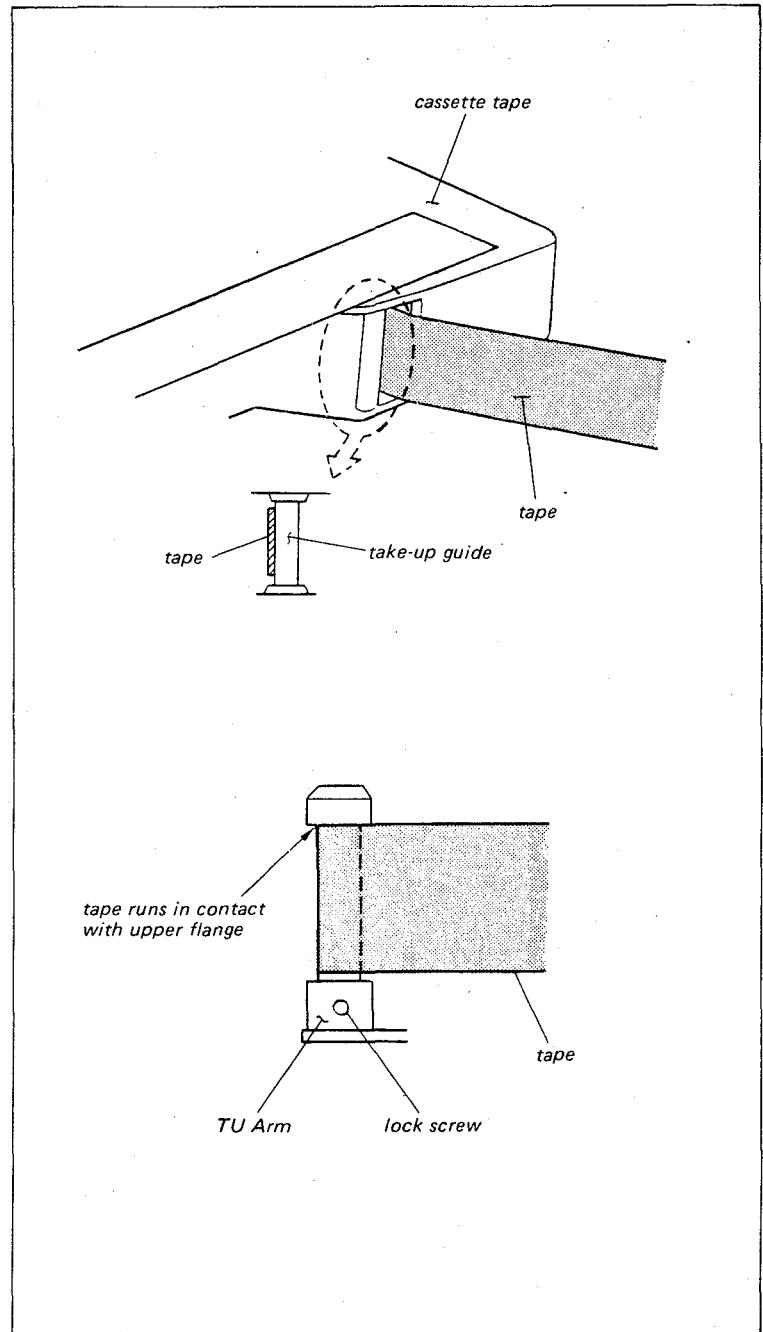
Tool: Cassette tape, KSP-S-20 or equivalent

Check procedure:

- (1) Insert the cassette tape and put the unit into the PLAY mode.
- (2) Check that the tape runs in the middle of the cassette's Take-up Guide.
- (3) Check that the tape runs in contact with the upper flange of the TU Arm.
- (4) Put the unit into the F.FWD mode.
- (5) Check in the same manner as Steps (2) and (3).

Adjustment procedure:

- (1) Loosen the locking screw.
- (2) Turn the upper flange of the tape guide to meet the required specification.



7-5. ERASE HEAD ZENITH ADJUSTMENT

Mode: Threading end

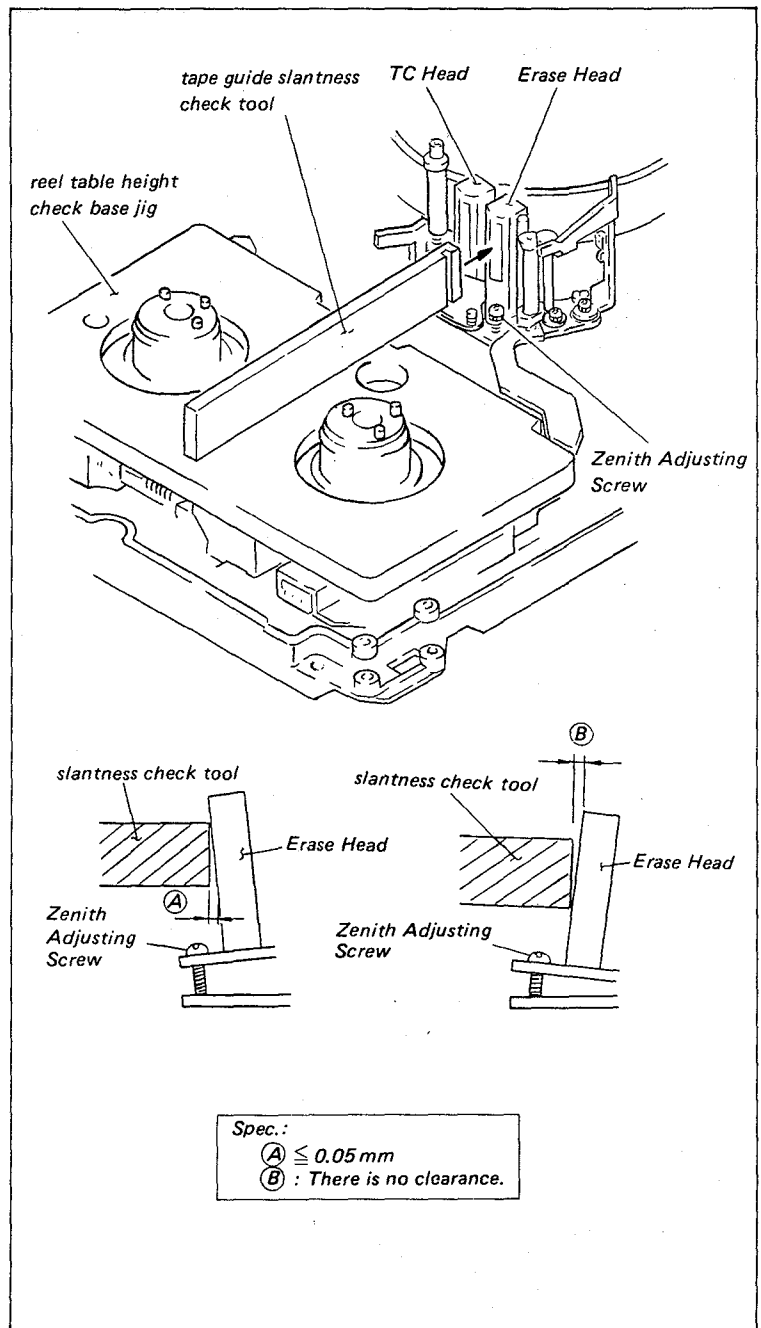
Tool: Reel table height check base jig
Tape guide slantness check tool

Check procedure:

- (1) Install the reel table height check base jig in the cassette's position.
- (2) Place the tape guide slantness check tool against the Erase Head, as shown in the figure. Check that the zenith meets the required specification.

Adjustment procedure:

- . When the clearance at the bottom position is out of specification.
- (1) Turn the Zenith Adjusting Screw in the counterclockwise direction to meet the required specification.
- . When the clearance at the top position is out of specification.
- (2) Turn the Zenith Adjusting Screw in the clockwise direction to meet the required specification.



7-6. VIDEO TRACKING ADJUSTMENT

Mode: Playback the alignment tape

Tool: Alignment tape, RR2-1SD-PAL

Oscilloscope

Allen wrench (across flat has 1.27mm)

Small mirror for adjustment

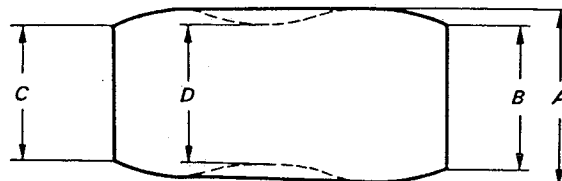
Preparation:

- (1) Remove the Upper Case and Lower Case.
- (2) Connect the oscilloscope as follows:
CH-1 : TP15/VA Board
CH-2 : TP18/VA Board
TRIG : CH-2
GND : E3/VA Board
- (3) Short between TP2 and GND on the SV Board with a short clip lead.
- (4) Playback the alignment tape.
- (5) The other channel can observe by turning the +/- of the trigger slope of oscilloscope.

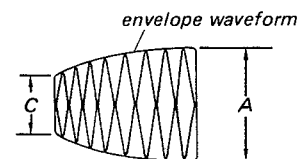
Check procedure:

- (1) While turning the TRACKING control knob, check that the RF envelope maintains a flat envelope as it increases and decreases.
- (2) Check that the RF envelope fluctuation and the head-to-tape contact are within the specification at the center detent position of the TRACKING control knob in FWD, REW and FF modes.
- (3) Check that there is not any tape curl at the Tension Regulator, TG-I, TG-II, TG-III and TG-IV.
- (4) Put the unit into the PAUSE mode, and check that the RF envelope is not lacking.
- (5) Put the unit into the F.FWD and REW modes, and check the tape curl of each tape guides are within the specification.

FWD mode



REW, FF mode



Spec.:

• FWD mode

head-to-tape contact

$$\frac{C}{A} \geq 0.7$$

$$\frac{B}{A} \geq 0.7$$

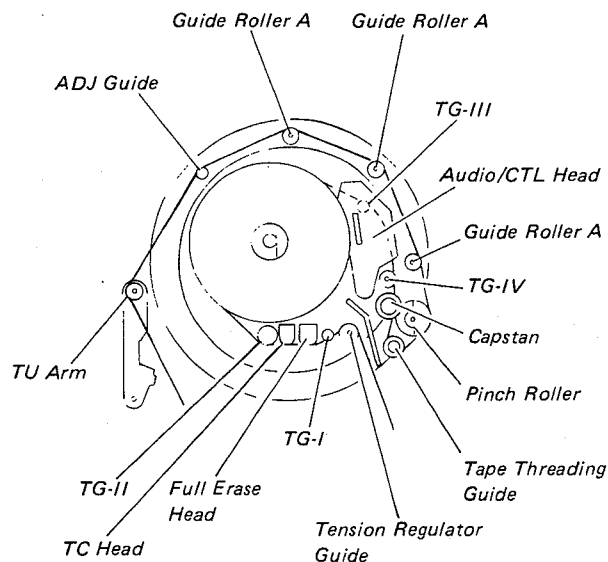
fluctuation

$$\frac{D}{A} \geq 0.9$$

• REW-FF mode

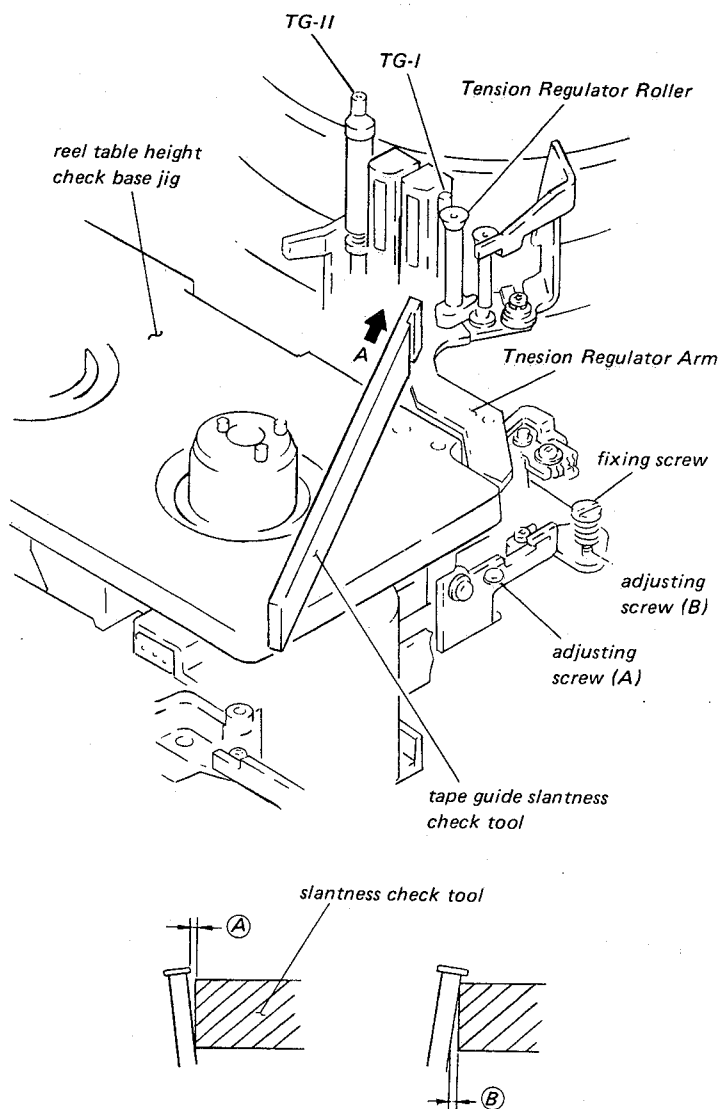
head-to-tape contact

$$\frac{C}{A} \geq 0.6$$



Adjustment procedure:

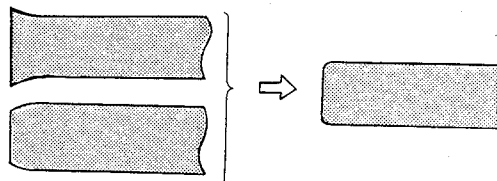
- . When adjusting the tape guide height.
Loosen the set screw of each tape guide, and adjust the height by turning the upper flange or adjusting screw.
- . When the tracking at the drum entrance is not correct.
 - (1) Turn the TRACKING control knob so that the RF envelope amplitude is 70 to 80 % of the maximum amplitude.
 - (2) Turn the upper flange of TG-II so that the upper flange does not contact the upper edge of the tape.
 - (3) Adjust the height of the Tension Regulator by turning the upper flange to meet the following specifications:
 - . The tape runs in contact with the upper flange.
 - . The tape runs in contact with the lead of the Lower Drum.
 - . The RF envelope waveform is flat.
 - (4) Adjust the height of TG-I by turning the adjusting screw so that the tape runs in contact with the lower flange of TG-I. Turn the adjusting screw 1/4 turn in the clockwise direction from the above state so that there is a clearance between the tape and the lower flange. Tighten the lock screw.
 - (5) Adjust the height of TG-II by turning the upper flange so that the upper edge of the tape runs in contact with the upper flange.
 - (6) If the specification for the RF envelope fluctuation or the head-to-tape contact at the drum entrance is not met, adjust the slantness of the Tension Regulator to be within the range of the specification by turning the adjusting screw, as shown in the figure. Perform the Steps (1) through (5) again.



Contact the slantness check tool from the A direction.

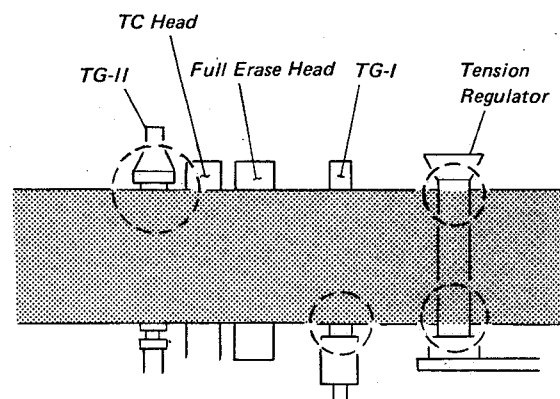
Spec.:
 (A): There is no clearance.
 $0.05 \text{ mm} \leq (B) \leq 0.1 \text{ mm}$

< drum entrance side >

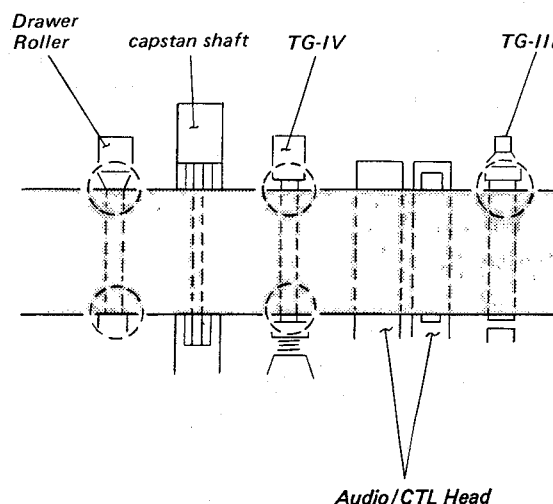
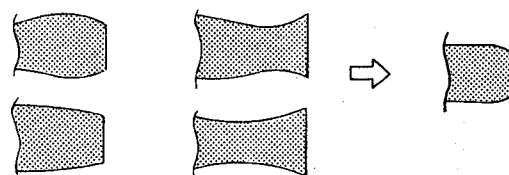


. When the tracking at the drum exit is not correct.

- (7) Turn the TRACKING control knob so that the RF envelope amplitude is 70 to 80 % of the maximum amplitude.
 - (8) Turn the upper flange of TG-III so that the upper flange does not contact the upper edge of the tape.
 - (9) Adjust the height of TG-IV by turning the upper flange to meet the following specifications:
 - . The tape runs in contact with the lead of the Lower Drum.
 - . The tape runs in contact with the upper flange of TG-IV.
 - . The RF envelope waveform is flat.
 - (10) Adjust the height of TG-III by turning the upper flange so that the upper edge of the tape runs in contact with the upper flange.
 - (11) If the specification of the RF envelope fluctuation or the head-to-tape contact at the drum exit is not met, adjust the slantness to be within the range of the specification. (Refer to sec.7-7, Audio/CTL Head Zenith Adjustment.)
- Perform Steps (7) through (10) again.



< drum exit side >



7-7. AUDIO/CTL HEAD ZENITH ADJUSTMENT

Mode: Turn the pulley of the gear box block by hand so that the guide on the Threading Ring is not located in front of the Audio/CTL Head.

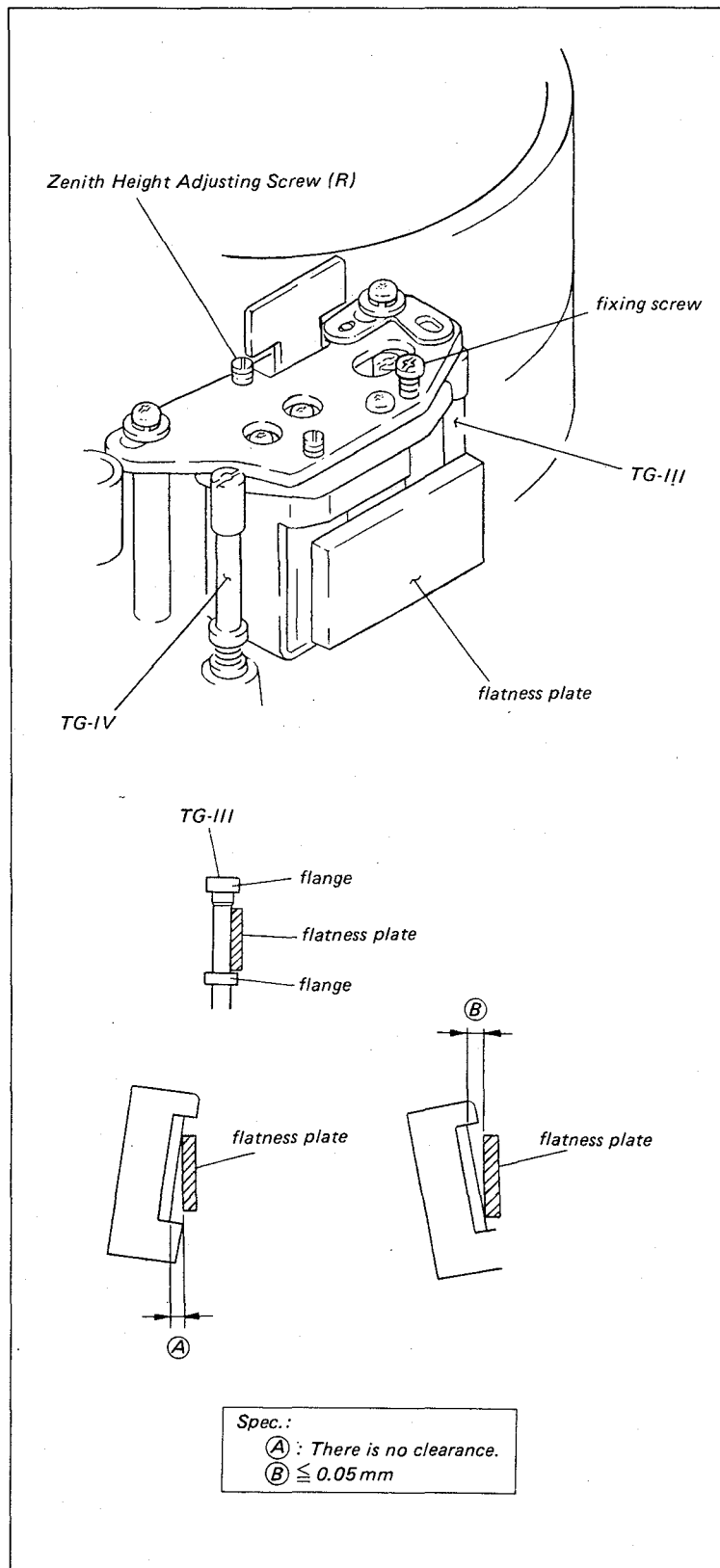
Tool: Flatness plate

Check procedure:

- (1) Place the flatness plate against the TG-III tape guide, as shown in the figure.
- (2) Check that the clearance between the head and the flatness plate meets the required specification, when the flatness plate is set on the flat portion of TG-III and the CTL Head.

Adjustment procedure:

- . If there is a clearance at the bottom position.
- (1) Loosen the fixing screw 1/4 to 1/2 turn.
- (2) Turn the Zenith Height Adjusting Screw (R) in the clockwise direction and adjust the zenith.
- (3) Tighten the fixing screw and check again.
- . If the clearance at the top position is out of the required specification.
- (4) Turn the zenith Height Adjusting Screw (R) in the counterclockwise direction and adjust the zenith.
- (5) Tighten the fixing screw and check again.



7-8. AUDIO HEAD HEIGHT ADJUSTMENT

Mode: Playback the alignment tape

Tool: Alignment tape, RR5-1SD-PAL

Dual trace oscilloscope or AC
voltmeter

Preparation:

- (1) Connect the oscilloscope or AC voltmeter to AUDIO OUT CH-1 and CH-2.
- (2) Playback the audio 1kHz signal portion of the alignment tape.

Check procedure:

- (1) While pressing down on the tape at (a), check that the level decreases.
- (2) While pushing up on the tape at (b), check that the level decreases.

Adjustment procedure:

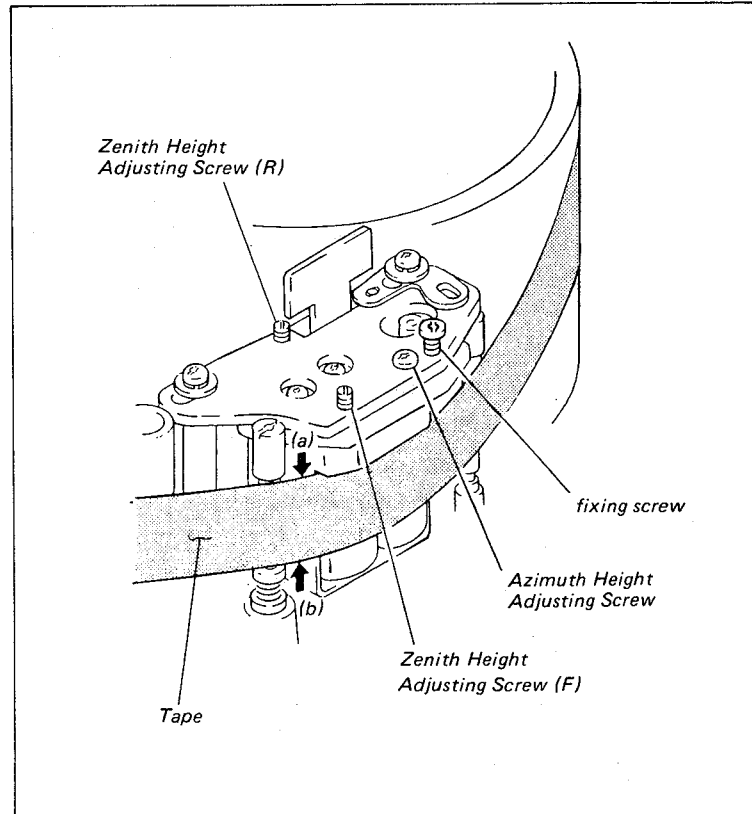
. If the level increases while pressing down on the tape at (a).

- (1) Loosen the fixing screw 2 to 3 turns. Turn the Zenith Height Adjusting Screws (R) and (F) in the counter-clockwise direction and turn the Azimuth Height Adjusting Screw an exactly equal amount in the clockwise direction. Adjust for maximum output.

- (2) After the adjustment, tighten the fixing screw and check again.

. If the level increases while pushing up on the tape at (b).

- (3) Turn the Zenith Height Adjusting Screws (R) and (F) in the clockwise direction and turn the Azimuth Height Adjusting Screw an exactly equal amount in the counterclockwise direction. Adjust for maximum output.
- (4) After the adjustment, tighten the fixing screw and check again.



7-9. AUDIO HEAD PHASE ADJUSTMENT

Mode: Playback the alignment tape

Tool: Alignment tape, RR5-1SD-PAL

Dual trace oscilloscope

Preparation:

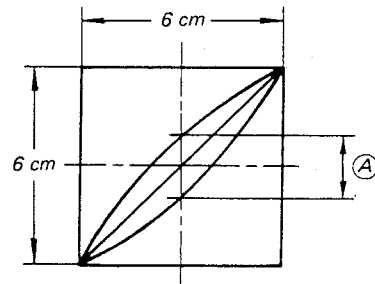
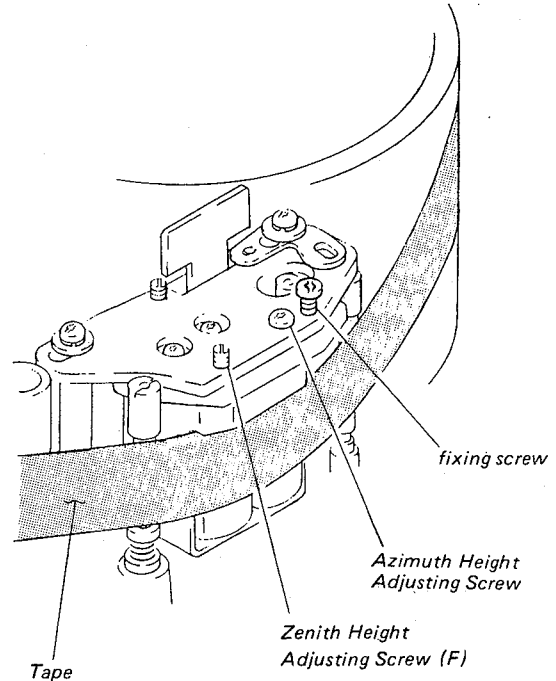
- (1) Connect the HORIZONTAL and VERTICAL terminals of the oscilloscope to AUDIO OUT CH-1 and CH-2.
- (2) Playback the audio 10kHz signal portion of the alignment tape.
- (3) Adjust the scope for a lissajous waveform with horizontal and vertical amplitudes of 6cm.

Check procedure:

- (1) Check that the vertical amplitude of the signal at X=0 meets the required specification.
- (2) Playback the audio 1kHz signal portion of the alignment tape, and check that the lissajous waveform meets the required specification.

Adjustment procedure:

- (1) Loosen the fixing screw about 1/4 to 1/2 turn.
- (2) Turn the Azimuth Height Adjusting Screw to meet the required specification.
- (3) Tighten the fixing screw, and check the phase again.



Spec.:

10 kHz: $A \leq 1.5 \text{ cm}$

1 kHz: $A \leq 0.52 \text{ cm}$

7-10. CTL HEAD POSITION ADJUSTMENT

Mode: Playback the alignment tape

Tool: Alignment tape, RR2-1SD-PAL

Oscilloscope

Eccentric screwdriver (4mm dia.)

Preparation:

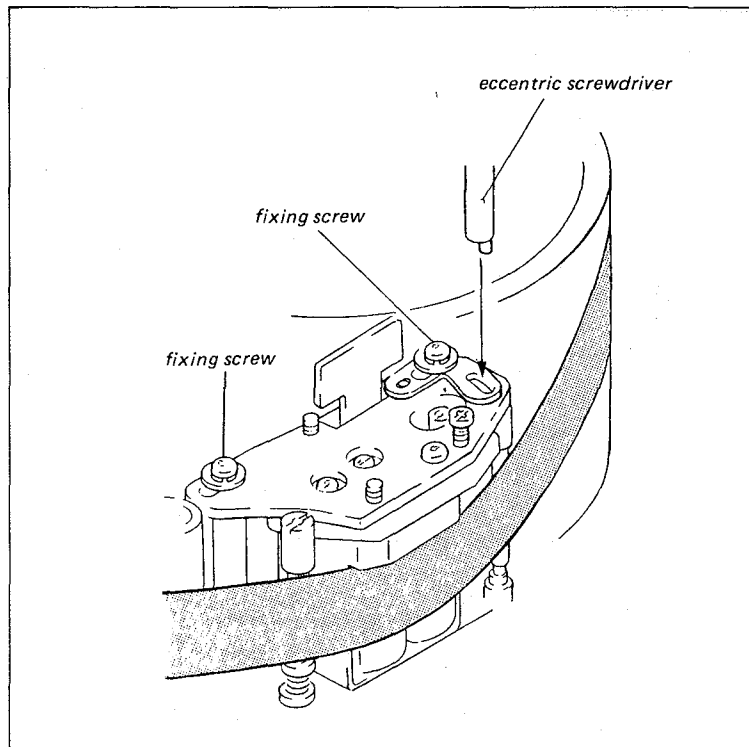
- (1) Remove the Upper Case and Lower Case.
- (2) Connect the oscilloscope as follows:
CH-1 : TP15/VA Board
TRIG : TP18/VA Board
GND : E3/VA Board
- (3) Short between TP2 and GND on the SV Board with a short clip lead.
- (4) Playback the alignment tape.

Check procedure:

- (1) While turning the TRACKING control knob, check that the RF envelope has the maximum amplitude at the center detent position.

Adjustment procedure:

- (1) Loosen the two fixing screws about 1/4 to 1/2 turn.
- (2) Insert the eccentric screwdriver into the hole, as shown in the figure. Adjust the CTL head position to meet the required specification.



7-11. TC HEAD ZENITH ADJUSTMENT

Mode: Unthreading-end

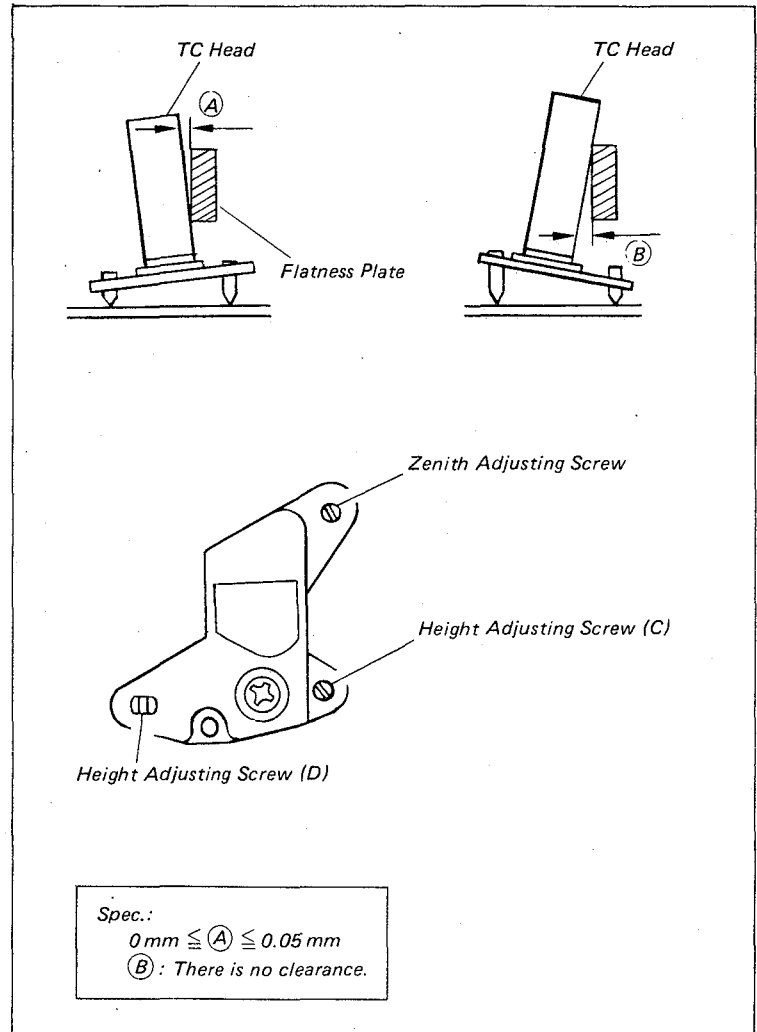
Tool: Flatness plate

Check procedure:

- (1) Check that the clearance between the TC Head and the Flatness Plate meets the required specification, when the Flatness Plate is set on the TG-II and the TC Head.

Adjustment procedure:

- (1) Turn the Zenith Adjusting Screw to meet the required specification.



7-12. TC HEAD HEIGHT ADJUSTMENT

Mode: Playback the alignment tape

Tool: Alignment tape, RR5-1SD-PAL

Oscilloscope

Audio noise meter

Preparation:

- (1) Connect the Audio noise meter to the TP204 (or 6pin/CN11) on the SY Board and then watch the AC output by the oscilloscope (Audio noise meter; Use rms range, filter of DIN/AUDIO or JIS A).
- (2) Playback the time code signal recorded segment of the alignment tape.

Check procedure:

- (1) While pressing down on the tape at (a), check that the level decreases.
- (2) While pushing up on the tape at (b), check that the level decreases.

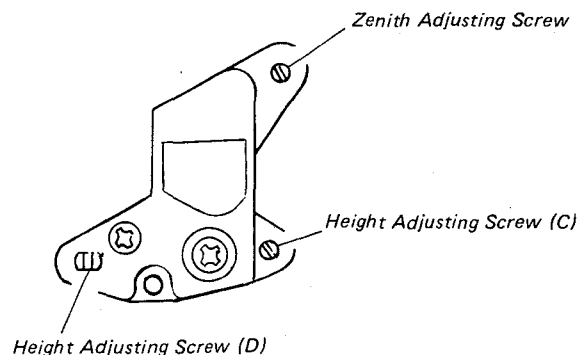
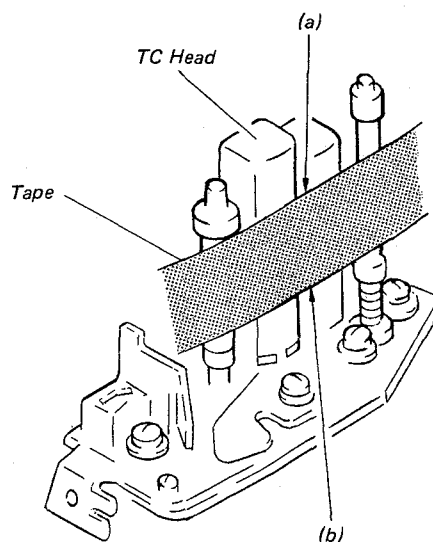
Adjustment procedure:

. If the level increases while pressing down on the tape at (a).

- (1) Turn the Height Adjusting Screws (C) and (D), and Zenith Adjusting Screw an exactly equal amount in the clockwise direction.

. If the level increases while pushing up on the tape at (b).

- (2) Turn the Height Adjusting Screws (C) and (D), and Zenith Adjusting Screw an exactly equal amount in the counter-clockwise direction.



7-13. TC HEAD TAPE-TO-HEAD CONTACT ADJUSTMENT

Mode: Playback the alignment tape

Tool: Alignment tape, RR5-1SD-PAL

Audio noise meter

Oscilloscope

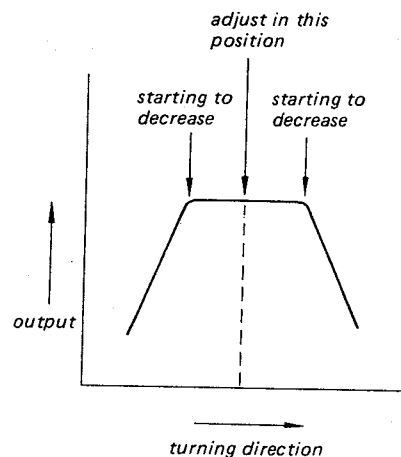
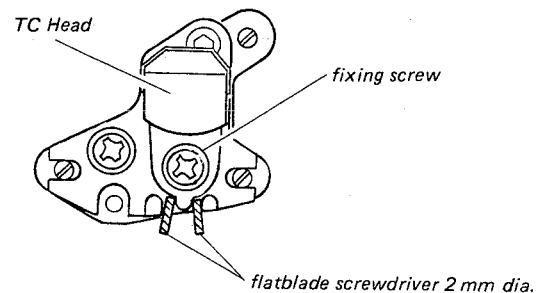
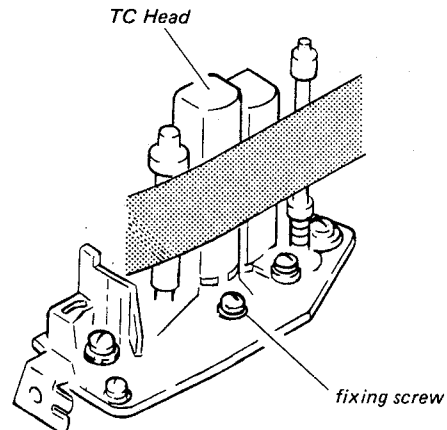
Eccentric screwdriver (4mm dia.)

Preparation:

- (1) Connect the Audio noise meter to the TP204 (or 6pin/CN11) on the SY Board and then watch the AC output by the oscilloscope (Audio noise meter; Use rms range, filter of DIN/AUDIO or JIS A).
- (2) Playback the time code signal recorded segment of the alignment tape.

Adjustment procedure:

- (1) Loosen the fixing screw of the TC Head about 1/2 to 1 turn.
- (2) Insert a flatblade screwdriver, 2mm dia. as shown in the figure. Adjust the TC Head Block where the output is maximum and starting to decrease.
- (3) Set the TC Head Block on the middle portion of two points and tighten the fixing screws to meet the required specification.



Spec.:
alteration amount of
the output level:
under 0.5 dB

7-14. TC HEAD POSITION ADJUSTMENT

Mode: Playback the alignment tape

Tool: Dual trace oscilloscope

Audio noise meter

Alignment tape, RR5-1SD-PAL

Eccentric screwdriver (4mm dia.)

Preparation:

- (1) Connect the oscilloscope as follows:

CH-1 : Connect the Audio noise meter to the TP204 (or 6pin/CN11) on the SY Board and then connect it to the AC output (Audio noise meter; Use rms range, filter of DIN/AUDIO or JIS A).

CH-2 : TP5/SV Board

TRIG : CH-2

- (2) Playback the time code signal recorded segment of the alignment tape.

Check procedure:

- (1) Check that the relationship between the CTL signal and the time code signal meets the required specification.

Adjustment procedure:

- (1) Loosen the fixing screw about 1/2 to 1 turn.
- (2) Insert the eccentric screwdriver into the hole, as shown in the figure. Adjust the TC Head Position to meet the required specification.
- (3) Tighten the fixing screw and confirm the required specification.

Fig-1

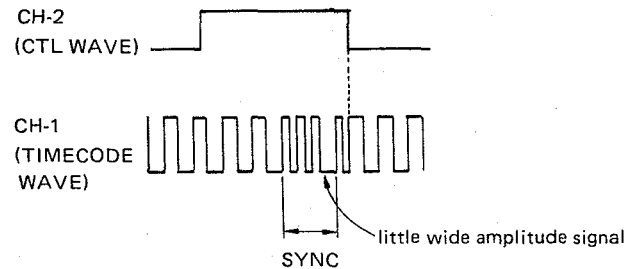
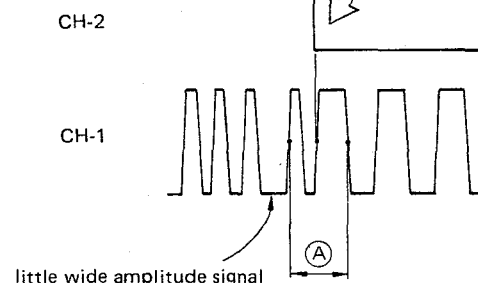
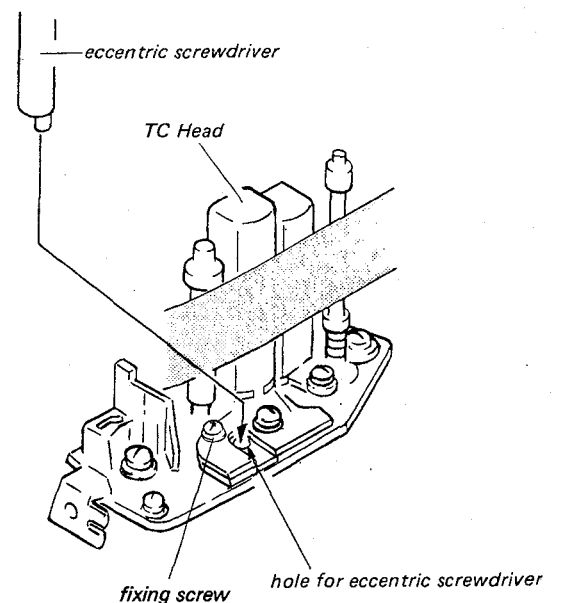


Fig-2



Spec.: The falling edge is within (A) period.



7-15. SWITCHING POSITION ADJUSTMENT

7-15-1. R/P Head Switching Position Adjustment

Mode: Playback the alignment tape

Tool: Alignment tape, RR2-1SD-PAL

Dual trace oscilloscope

Preparation:

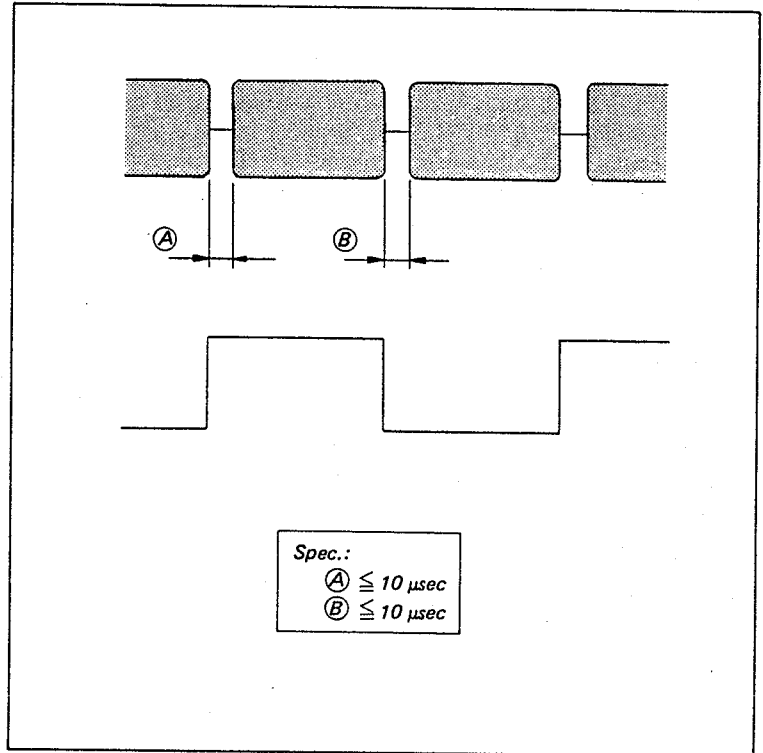
- (1) Remove the Upper Case and Lower Case.
- (2) Connect the oscilloscope as follows:
CH-1 : TP15/VA Board
CH-2 : TP18/VA Board
TRIG : CH-2
GND : E3/VA Board
- (3) Short between TP2 and GND on the SV Board with a short clip lead.
- (4) Turn the TRACKING control knob to the center detent position.
- (5) Playback the alignment tape.

Check procedure:

- (1) Check that the waveform at the switching pulse portion meets the required specification.
- (2) If it meets the required specification, disconnect the short clip lead.

Adjustment procedure:

- (1) Adjust RV6 and RV7/SV Board to meet the required specification.
- (2) After adjustment, disconnect the short clip lead.



7-15-2. Confidence Head Switching Position Adjustment

Mode: REC mode

Tool: KSP-S-20 cassette tape

Dual trace oscilloscope

Preparation:

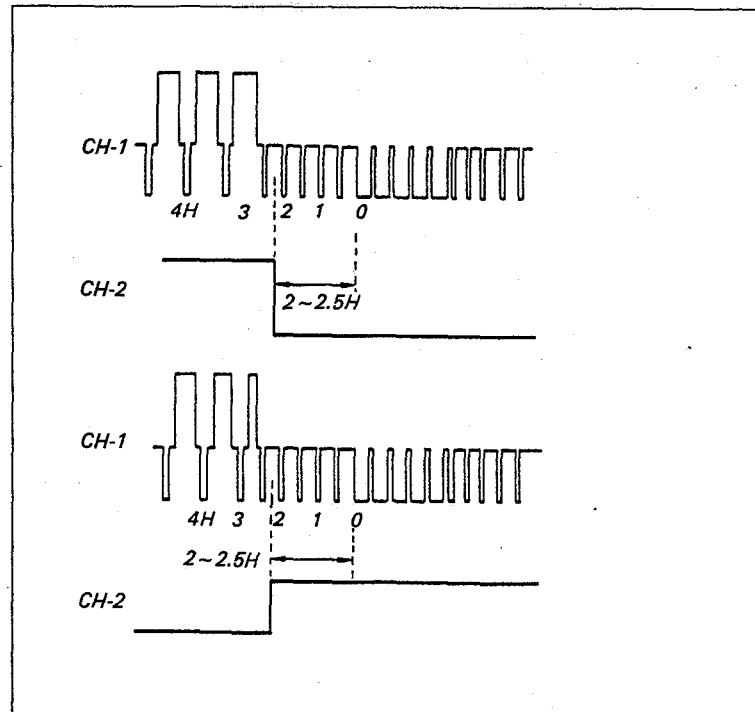
- (1) Remove the Upper Case and Lower Case.
- (2) Connect the video signal to the VIDEO IN connector.
- (3) Connect the oscilloscope as follows:
CH-1 : TP501/VA Board
CH-2 : TP18/VA Board
TRIG : CH-2
- (4) Insert the cassette tape
- (5) Put the unit into the REC mode.

Check procedure:

- (1) Check that the waveform at the switching pulse portion meets the required specification.

Adjustment procedure:

- (1) Adjust RV11/SV Board to meet the required specification.



7-16. VIDEO HEAD DIHEDRAL ADJUSTMENT

. This adjustment is performed only for the REC/PB Head.

Mode: Playback the alignment tape

Tool: Alignment tape, RR5-1SD-PAL

Dihedral adjusting eccentric screwdriver

Monitor TV

Preparation:

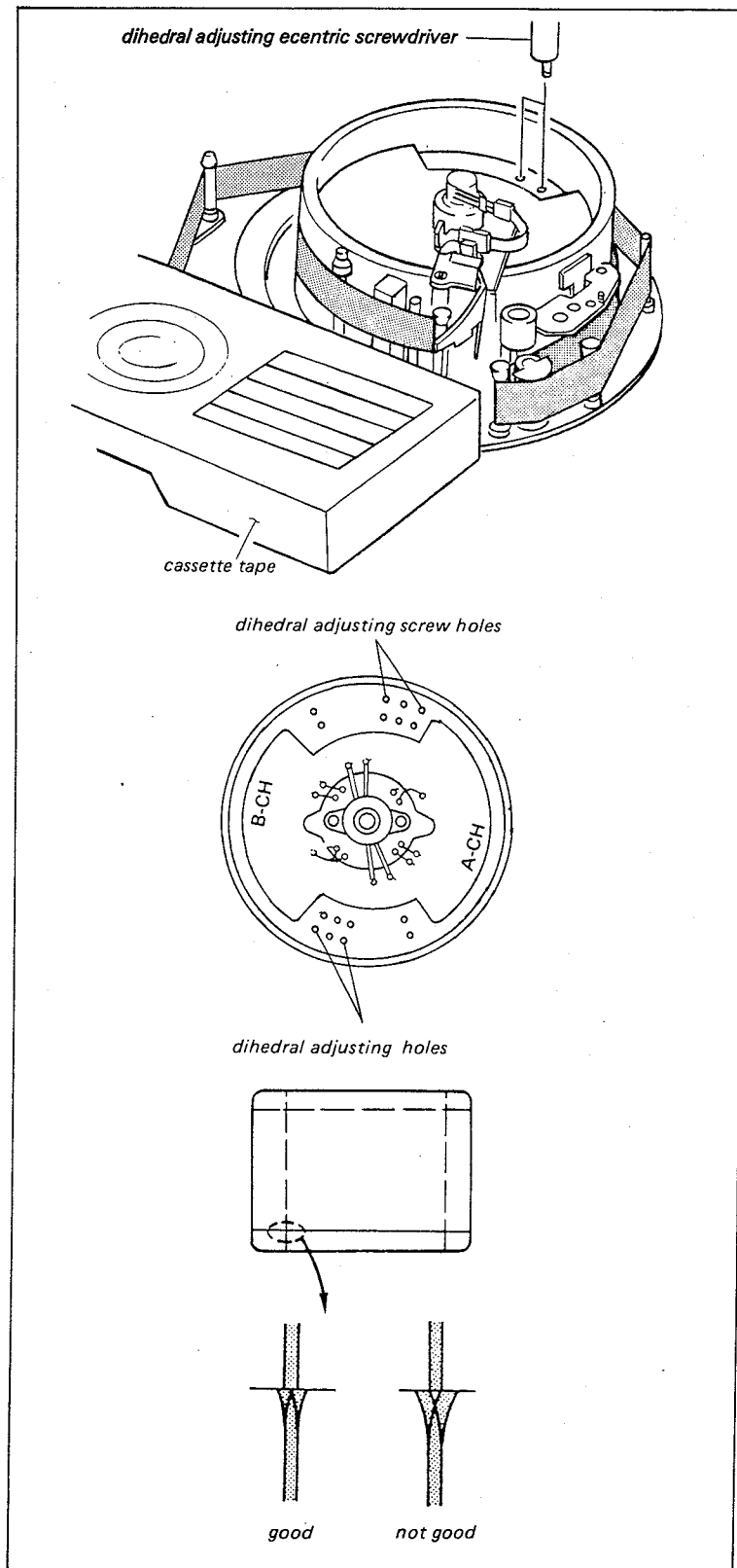
- (1) Connect a monitor-TV to the VTR.
- (2) Playback the monoscope signal portion of the alignment tape.

Check procedure:

- (1) Check that the vertical line of the monoscope signal under the switching pulse is played back as one line.
(If two lines are visible, adjustment is required.)

Adjustment procedure:

- (1) Insert the dihedral adjusting eccentric screwdriver into the dihedral adjusting holes and adjust the dihedral of the video head.
- (2) When the monoscope signal is played back and distortion of the vertical line has gotten worse than before adjustment, insert the dihedral adjusting eccentric screwdriver into the other dihedral adjusting holes of the same video head and adjust the dihedral of the video head.



SECTION 8

POWER SUPPLY/SYSTEM CONTROL ALIGNMENT

(Equipment Required)

- DC Voltmeter
- Oscilloscope
- AC Adapter (AC-500CE)

NOTE: AC-500CE DC output is 13Vdc.

- Video Camera
- Blank Tape: KCS or KSP-S Tape

8-1. SAVE +10V ADJUSTMENT

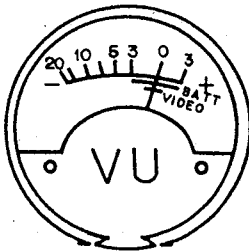
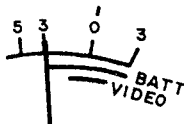
| machine conditions for adjustment | specification | adjustments |
|--|--|------------------|
| <ul style="list-style-type: none"> • DC IN 12V: $+12 \pm 0.02V$ • EE mode | TP902/VA-76(K-9) $10.50 \pm 0.005Vdc$ | RV901/VA-76(L-7) |

NOTE: If the SAVE +10V adjustment is attempted, re-alignment of the video and servo systems are required.

Do not attempt adjustment of the SAVE +10V power supply unless the unit performance is obviously poor due to incorrect power supply voltage. If adjustments are made to the power supply, re-alignments of the video and servo systems are necessary.

8-2. BATTERY METER CALIBRATION ADJUSTMENT

[NOTE] When performing this adjustment, be sure not to put the tape portion into the top or the end.

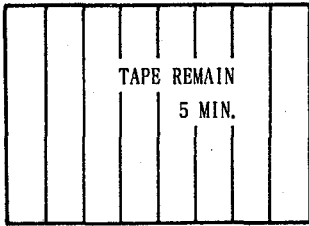
| machine conditions for adjustment | specification | adjustments |
|---|---|------------------|
| <ul style="list-style-type: none"> • Short between TP4/SY-131A(E-2) and the chassis in the VO-8800P with a shorting clip. • METER SELECT sw: BATT • Insert a KCS or KSP-S tape. • PB mode • DC IN 12V: EXT DC (at TP901/VA-76(L-7): $11.0 \pm 0.02Vdc$) | BATTERY meter   Set the pointer to the left end of BATT scale. | RV902/VA-76(M-8) |

8-3. BATTERY LEVEL DETECTION ADJUSTMENT

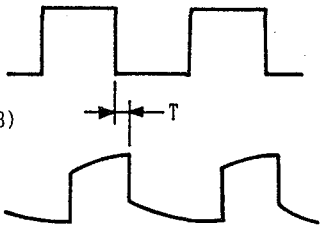
[NOTE] When performing this adjustment, be sure not to put the tape portion into the top or the end.

| machine conditions for adjustment | specification | adjustments |
|---|--|-------------------|
| <ul style="list-style-type: none"> • Short TP4/SY-131A(E-2) and the chassis in the VO-8800P with a shorting clip. • DC IN 12V: EXT DC • Connect a camera to the VO-8800P. • Insert a KCS or KSP-S tape. • REC mode | TP901/VA-76(L-7) $10.99 \pm 0.005\text{Vdc}$ | ⚙EXT DC voltage |
| | TP1/SY-131A(H-2) Adjust to the point whose level changes from pulse output to low level. (Approximately 1V noise will remain.) | ⚙RV1/SY-131A(G-2) |

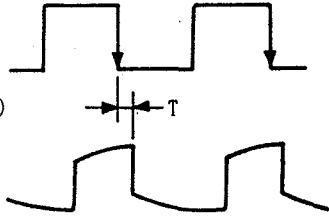
8-4. CHARACTER SIZE ADJUSTMENT

| machine conditions for adjustment | specification | adjustments |
|--|---|-------------------|
| <ul style="list-style-type: none"> • Connect a video camera to the CAMERA connector. • CAMERA OUT: color-bar signal • Insert a KCS or KSP-S tape. • REC mode • Press the Return Video button on the video camera. | Viewfinder screen on the camera  The right end of character N in the "TAPE REMAIN" should be positioned on the left end of second color bar from the rightest side. | ⚙CV501/VA-76(B-2) |

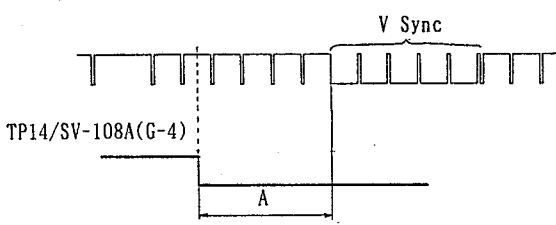
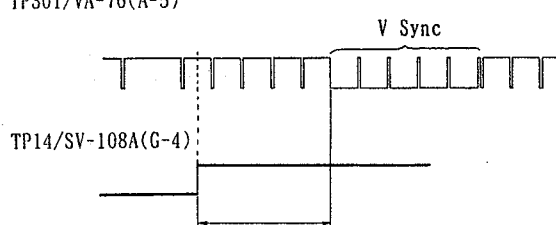
9-3. REC TRACKING ADJUSTMENT

| machine conditions for adjustment | specification | adjustments |
|---|---|--|
| <ul style="list-style-type: none"> • VIDEO IN: color-bar signal • Set the TRACKING volume to the center clicked position. • Attach a safty cap to the alignment tape RR5-1SD PAL. • Play back the pulse & bar (color) signal portion on the alignment tape RR5-1SD PAL. • Adjust pushing the REC button in the PB mode. • After this adjustment is completed, remove the safty cap from the alignment tape. | <p>TP8/SV-108A(J-1)</p>  <p>TP5/SV-108A(G-3)</p> <p>$T = 0 \pm 50\mu\text{sec}$ (Read the level at the center of jitter)</p> | <p>RV4/SV-108A(F-4)</p> <ul style="list-style-type: none"> • Adjust after 30 seconds pass in the PLAY mode. <p>TRIG: TP8/SV-108A(J-1)</p> |

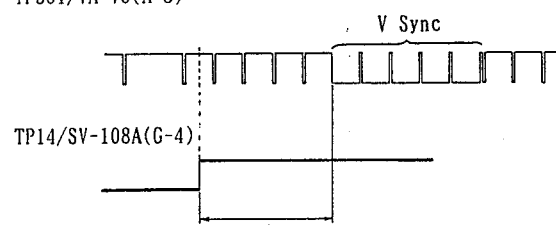
9-4. CAPSTAN FAST LOCK PHASE ADJUSTMENT

| machine conditions for adjustment | specification | adjustments |
|--|---|--|
| <ul style="list-style-type: none"> • Set the TRACKING volume to the center clicked position. • Short between TP5/SY-131A(C-3) and the chassis in the VO-8800P with a shorting clip. • Play back the color-bar signal portion on the alignment tape RR5-1SD PAL, and then put the unit into the PLAY-PAUSE mode. • Put the unit into the PLAY mode in order to release the PAUSE condition. | <p>TP8/SV-108A(J-1)</p>  <p>TP5/SV-108A(G-3)</p> <p>$T = 0 \pm 50\mu\text{sec}$ (Read the level at the center of jitter)</p> | <p>RV15/SV-108A(D-2)</p> <p>TRIG: TP8/SV-108A(J-1)</p> |

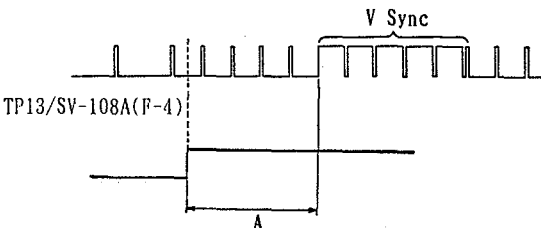
9-5. SWITCHING POSITION ADJUSTMENT

| machine conditions for adjustment | specification | adjustments |
|---|---|---|
| <ul style="list-style-type: none"> • Short between TP2/SV-108A(G-3) and E1/SV-108A(G-1) with a shorting clip. • Play back the color-bar signal portion on the alignment tape RR5-1SD PAL. | <p>A adjustment TP301/VA-76(A-5)</p>  <p>$A = 2.25 \pm 0.15H$</p> | <p>RV7/SV-108A(G-1)</p> <p>TRIG: TP8/SV-108A(J-1)</p> |
| | <p>B adjustment TP301/VA-76(A-5)</p>  <p>$A = 2.25 \pm 0.15H$</p> | <p>RV6/SV-108A(G-2)</p> <p>TRIG: TP8/SV-108A(J-1)</p> |

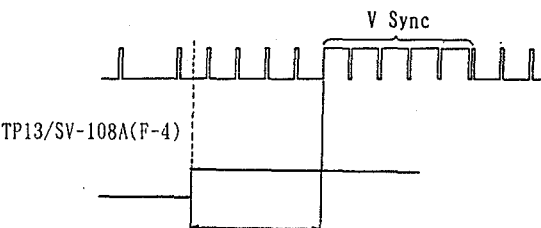
9-6. CONFIDENCE SWITCHING POSITION ADJUSTMENT

| machine conditions for adjustment | specification | adjustments |
|--|---|--|
| <ul style="list-style-type: none"> • VIDEO IN: color-bar signal • REC mode | <p>TP501/VA-76(A-3)</p>  <p>$A = 2.25 \pm 0.15H$</p> | <p>RV11/SV-108A(E-3)</p> <p>TRIG: TP8/SV-108A(J-1)</p> |

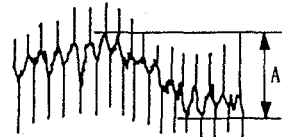
9-7. DRUM LOCK PHASE ADJUSTMENT

| machine conditions for adjustment | specification | adjustments |
|--|--|---|
| <ul style="list-style-type: none"> • VIDEO IN: color-bar signal • Short between TP16/SV-108A(G-2) and E1/SV-108A(G-1) with a shorting clip. • Insert a KCS or KSP-S tape. • REC mode | <p>TP1/SV-108A(J-3)</p>  <p>TP13/SV-108A(F-4)</p> <p>$A = 2.25 \pm 0.25H$</p> | <p>RV5/SV-108A(F-1)</p> <p>TRIG: TP8/SV-108A(J-1)</p> |

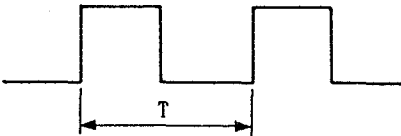
9-8. ϕ^2 PHASE ADJUSTMENT

| machine conditions for adjustment | specification | adjustments |
|---|--|---|
| <p>Step 1</p> <ul style="list-style-type: none"> • VIDEO IN: color-bar signal • Insert a KCS or KSP-S tape. • REC mode | <p>TP1/SV-108A(J-3)</p>  <p>TP13/SV-108A(F-4)</p> <p>$A = 2.25 \pm 0.25H$</p> | <p>RV3/SV-108A(H-1)</p> <p>TRIG: TP8/SV-108A(J-1)</p> |

9-9. PICTURE SPLITTING COMPENSATION ADJUSTMENT

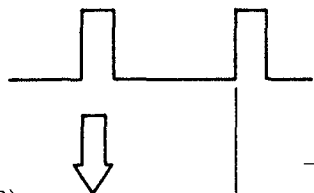

| machine conditions for adjustment | specification | adjustments |
|---|--|--|
| <ul style="list-style-type: none"> • Play back the color-bar signal portion on the alignment tape RR5-1SD PAL. | <p>pin14 of IC14/SV-108A(D-1)</p>  <p>Minimize the error voltage A</p> | <p>Phase adjustment</p> <p>RV9/SV-108A(E-1)</p> <p>Level adjustment</p> <p>RV10/SV-108A(E-2)</p> <p>TRIG: TP8/SV-108A(J-1)</p> |

9-10. REEL MOTOR SPEED ADJUSTMENT

| machine conditions for adjustment | specification | adjustments |
|---|---|--|
| <ul style="list-style-type: none"> • Insert the alignment tape RR5-1SD PAL. (tape top portion) • F-FWD mode | <p>TP5/SV-108A(G-3)</p>  <p>$T = 4.2 \pm 0.1\text{msec}$ (Read the level at the center of jitter.)</p> | <p>RV16/SV-108A(E-4)</p> <p>TRIG: TP5/SV-108A(G-3)</p> |

9-11. DRUM AFC BIAS ADJUSTMENT

[NOTE] When performing this adjustment, be sure not to put the tape portion into the top or the end.

| machine conditions for adjustment | specification | adjustments |
|--|---|--|
| <ul style="list-style-type: none"> • Short between TP4/SY-131A(E-2) and the chassis in the VO-8800P with a shorting clip. • Insert the alignment tape RR5-1SD PAL. (pulse & bar (color) signal portion) • PLAY mode | <p>TP2/SV-108A(G-3)</p> <p>PLAY mode</p>  | |
| <ul style="list-style-type: none"> • Short between TP4/SY-131A(E-2) and the chassis in the VO-8800P with a shorting clip. • Connect a 100Ω-resistor between TP7/SV-108A(B-1) and TP10/SV-108A(G-1). • PLAY-PAUSE mode | <p>TP2/SV-108A(G-3)</p> <p>PAUSE mode</p>  <p>$T = 0 \pm 0.1\mu\text{sec}$</p> | <p>RV13/SV-108A(D-1)</p> <p>TRIG: TP2/SV-108A(G-3)</p> |

9-12. DRUM AFC TRANSIENT ADJUSTMENT

[NOTE] When performing this adjustment, be sure not to put the tape portion into the top or the end.

| machine conditions for adjustment | specification | adjustments |
|---|--|--------------------------|
| <p>Step 1</p> <ul style="list-style-type: none"> • Short between TP4/SV-131A(E-2) and the chassis in the VO-8800P with a shorting clip. • Connect a 100Ω-resistor between TP7/SV-108A(B-1) and TP10/SV-108A(G-1). • Insert the alignment tape RR5-1SD PAL. (pulse & bar (color) signal portion) • PLAY-PAUSE mode | <p>TP17/SV-108A(E-1)</p> <p>DC level in the PAUSE mode = reference</p> | |
| <p>Step 2</p> <ul style="list-style-type: none"> • Remove the shorting clips from TP7/SV-108A(B-1) and TP10/SV-108A(G-1). • PLAY mode | <p>TP17/SV-108A(E-1)</p> <p>DC level in the PLAY mode = reference \pm 0.05V</p> | <p>RV12/SV-108A(D-1)</p> |

SECTION 10

AUDIO SYSTEM ALIGNMENT

(Equipment Required)

- Dual Trace Oscilloscope.
- Frequency Counter.
- Audio Oscillator.
- AC Volt Meter/Noise Meter.
- Audio Attenuator.
- Blank Tape: KCS and KSP-S. (When performing adjustments, use KCS tape unless otherwise specifically indicated.)
- Alignment Tape: RR5-1SD PAL (Part No. 8-960-036-80) —SP tape—

| TIME | VIDEO | AUDIO | NR | TIME CODE |
|------|--|--------------|-----|-----------|
| 5 | Color bars | _____ | OFF | _____ |
| 3 | Gated sweep (B/W) | 1kHz, 0dB | | _____ |
| 3 | Gated sweep (color) | 10kHz, -10dB | | _____ |
| 3 | Pulse & bar (color) (MOD 10T and inverted 2T) | 1kHz, -20dB | | _____ |
| | | 40Hz, -20dB | | _____ |
| | | 7kHz, -20dB | | _____ |
| | | 10kHz, -20dB | | _____ |
| | | 15kHz, -20dB | | _____ |
| 3 | Monoscope (color) | 1kHz, -20dB | ON | _____ |
| | | 15kHz, -20dB | | _____ |
| 3 | Pseudo color bars | _____ | OFF | Time code |

(Switch Setting)

- Front Panel
 - METER select sw : CH-1
 - AUDIO LEVEL (CH-1/CH-2) : MAN
- Connector Panel
 - DOLBY NR sw : OFF
 - AUDIO CAMERA/LINE sw : LINE
 - 60/-20/+4dB select sw : -60dB
 - CH-1/MIX/CH-2 select sw : CH-1

(Note)

Supply the color-bar signal to the VIDEO IN connector when performing the audio system alignment.
0dBu = 0.775Vrms

10-1. EE LEVEL ADJUSTMENT

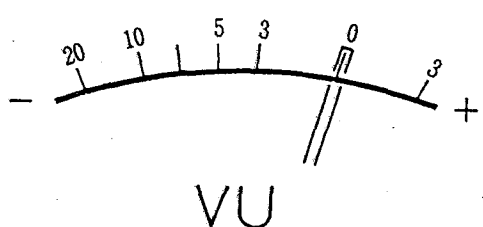
| machine conditions for adjustment | specification | adjustment |
|---|---|--|
| <ul style="list-style-type: none"> AUDIO IN: 1kHz, -60dBu EE mode | CH-1: TP671/VA-76(M-5) CH-2: TP771/VA-76(L-5) $-10.0 \pm 0.2\text{dBu}$ | <ul style="list-style-type: none"> CH-1 AUDIO LEVEL control (front panel) CH-2 AUDIO LEVEL control (front panel) |

NOTE: The position of the control volumes should not be moved till the Audio System Alignment is completed.

10-2. EE LINE OUT LEVEL CHECK

| machine conditions for adjustment | specification | adjustment |
|--|--|------------|
| <ul style="list-style-type: none"> AUDIO IN: 1kHz, -60dBu | AUDIO OUT connector (terminated by 600Ω) $+4.0 \pm 0.5\text{dBm}$ | |

10-3. AUDIO LEVEL METER ADJUSTMENT

| machine conditions for adjustment | specification | adjustment |
|---|--|--|
| <ul style="list-style-type: none"> Put the unit upright and place the meter at horizontal level. AUDIO IN: 1kHz, -60dBu | Audio level meter  The pointer reading should be zero. <Reference> When putting the unit upright and placing the meter at horizontal level, the pointer is located within the width of three pointers. | CH-1: ●RV831/VA-76(M-7) CH-2: ●RV832/VA-76(M-7) |

10-4. LIMITER LEVEL ADJUSTMENT

| machine conditions for adjustment | specification | adjustment |
|---|---|--|
| <ul style="list-style-type: none"> AUDIO IN: 1kHz, -30dBu EE mode | AUDIO OUT connector (terminated by 600Ω) $+12 \pm 0.5\text{dBm}$ | CH-1: ⓈRV631/VA-76(K-5) CH-2: ⓈRV731/VA-76(K-5) |

10-5. PB FREQUENCY RESPONSE ADJUSTMENT

| machine conditions for adjustment | specification | adjustment | | | | | | | | | | | | |
|--|--|------------|-------|------|--------|------|-----------|------|----------|-------|-----------|-------|-----------|--|
| <ul style="list-style-type: none">• Play back the audio frequency response check signal portion on the alignment tape RR5-1SD PAL. | <p>AUDIO OUT connector (terminated by 600Ω)</p> <table><tr><th>Freq.</th><th>Level</th></tr><tr><td>40Hz</td><td>0 ±3dB</td></tr><tr><td>1kHz</td><td>0dB(Ref.)</td></tr><tr><td>7kHz</td><td>0 ±0.5dB</td></tr><tr><td>10kHz</td><td>0 ± 0.4dB</td></tr><tr><td>15kHz</td><td>0 ± 0.4dB</td></tr></table> | Freq. | Level | 40Hz | 0 ±3dB | 1kHz | 0dB(Ref.) | 7kHz | 0 ±0.5dB | 10kHz | 0 ± 0.4dB | 15kHz | 0 ± 0.4dB | <ul style="list-style-type: none">• 7kHz CH-1: ●RV602/VA-76(J-3) CH-2: ●RV702/VA-76(K-3)• 10kHz through 15kHz CH-1: ●RV601/VA-76(K-2) CH-2: ●RV701/VA-76(K-2) |
| Freq. | Level | | | | | | | | | | | | | |
| 40Hz | 0 ±3dB | | | | | | | | | | | | | |
| 1kHz | 0dB(Ref.) | | | | | | | | | | | | | |
| 7kHz | 0 ±0.5dB | | | | | | | | | | | | | |
| 10kHz | 0 ± 0.4dB | | | | | | | | | | | | | |
| 15kHz | 0 ± 0.4dB | | | | | | | | | | | | | |

10-6. PB LEVEL ADJUSTMENT

| machine conditions for adjustment | specification | adjustment |
|---|---|--|
| <ul style="list-style-type: none"> Play back the 1kHz, 0dB signal portion on the alignment tape RR5-1SD PAL. | CH-1: TP671/VA-76(M-5) CH-2: TP771/VA-76(L-5) $-10.0 \pm 0.2\text{dBu}$ | CH-1: ⓈRV604/VA-76(K-3) CH-2: ⓈRV704/VA-76(K-3) |

10-7. PB LINE OUT LEVEL CHECK

| machine conditions for adjustment | specification | adjustment |
|---|--|------------|
| <ul style="list-style-type: none"> • Play back the 1kHz, 0dB signal portion on the alignment tape RR5-1SD PAL. | AUDIO OUT connector (terminated by 600Ω) $+4.0 \pm 0.5\text{dBm}$ | |

10-8. FULL ERASE OSC FREQUENCY/LEVEL ADJUSTMENT

| machine conditions for adjustment | specification | adjustment |
|--|---|---|
| <ul style="list-style-type: none"> • Insert a KSP-S tape. • REC mode | TP202/SY-131A(B-1) GND: E201/SY-131A(C-2) Freq. : $71 \pm 0.3\text{kHz}$ Level : $245 \pm 45\text{mVrms}$ * Adjust so as to meet the both specifications. | <ul style="list-style-type: none"> ● CV201/SY-131A(B-2) ● SL201 through 204/SY-131A * When the specification is not satisfied, short or open SL204, 201, 202 and 203 respectively, and then adjust. |

10-9. AUDIO ERASE OSC FREQUENCY/LEVEL ADJUSTMENT

| machine conditions for adjustment | specification | adjustment |
|--|---|----------------------|
| <ul style="list-style-type: none"> • Insert a KSP-S tape. • DUB mode | TP201/SY-131A(C-2) Freq. : $71 \pm 1\text{kHz}$ Level : $245 \pm 45\text{mVrms}$ * Adjust so as to meet the both specifications. | ● LV201/SY-131A(C-1) |

10-10. REC BIAS ADJUSTMENT

| machine conditions for adjustment | specification | adjustment |
|--|--|--|
| Step 1 • Insert a KSP-S tape. • REC mode | CH-1: TP601/VA-76(J-2) GND: TP602/VA-76(J-2) CH-2: TP701/VA-76(K-2) GND: TP702/VA-76(K-2) 10.0 ± 0.5Vrms | CH-1: RV201/SY-131A(B-2) CH-2: RV202/SY-131A(B-2) |
| Step 2 • Insert a KCS tape. • REC mode | 8.0 ± 0.5Vrms | RV801/VA-76(K-7) |

10-11. BIAS TRAP ADJUSTMENT

| machine conditions for adjustment | specification | adjustment |
|---|---|---|
| • AUDIO IN: no signal • REC mode | CH-1: TP603/VA-76(M-2) GND: E601/VA-76(M-2) CH-2: TP703/VA-76(L-2) GND: E701/VA-76(L-2) Minimize the bias leak. (less than 0dBu) | CH-1: LV601/VA-76(L-2) CH-2: LV701/VA-76(L-2) • Adjust from the component side. |

10-12. DUB BIAS TRAP ADJUSTMENT

| machine conditions for adjustment | specification | adjustment |
|---|--|---|
| • AUDIO IN: no signal • Insert a KSP-S tape. • DUB mode | TP705/VA-76(K-3) E701/VA-76(L-2) Minimize the bias leak. (less than -15dBu) | LV704/VA-76(K-2) • Adjust from the component side. |

10-13. REC EQ FREQUENCY RESPONSE ADJUSTMENT

| machine conditions for adjustment | specification | adjustment | | | | | | | | | | |
|--|---|------------|-------|------|------|-------|------------|-------|-------------|-------|-------------------|---|
| <ul style="list-style-type: none">• AUDIO IN: 1kHz, 10kHz, 15kHz, 18kHz/-70dBu• Insert a KSP-S tape.• REC mode | <div>CH-1: TP604/VA-76(M-2)</div> <div>CH-2: TP704/VA-76(L-2)</div> <table><tr><th>Freq.</th><th>Level</th></tr><tr><td>1kHz</td><td>Ref.</td></tr><tr><td>10kHz</td><td>+6.0 ± 2dB</td></tr><tr><td>15kHz</td><td>+13.0 ± 3dB</td></tr><tr><td>18kHz</td><td>less than +16.0dB</td></tr></table> | Freq. | Level | 1kHz | Ref. | 10kHz | +6.0 ± 2dB | 15kHz | +13.0 ± 3dB | 18kHz | less than +16.0dB | <div>CH-1:</div> <div>●RV605/VA-76(M-3)</div> <div>●LV603/VA-76(M-3)</div> <div>CH-2:</div> <div>●RV705/VA-76(L-3)</div> <div>●LV703/VA-76(L-3)</div> |
| Freq. | Level | | | | | | | | | | | |
| 1kHz | Ref. | | | | | | | | | | | |
| 10kHz | +6.0 ± 2dB | | | | | | | | | | | |
| 15kHz | +13.0 ± 3dB | | | | | | | | | | | |
| 18kHz | less than +16.0dB | | | | | | | | | | | |

10-14. CROSSTALK CANCEL ADJUSTMENT

| machine conditions for adjustment | specification | adjustment |
|--|--|-------------------|
| <ul style="list-style-type: none"> AUDIO IN CH-1: 5kHz, +4dBu Insert a blank KSP-S tape. DUB mode | CH-2 AUDIO OUT connector (terminated by 600Ω) Minimize the level. (less than -18dBu) | ⌚RV708/VA-76(L-2) |

10-15. OVERALL FREQUENCY RESPONSE ADJUSTMENT (SP TAPE/NR OFF)

| machine conditions for adjustment | specification | adjustment | | | | | | | | | | | | | | | | |
|--|---|--|-------|------|---------|------|---------|------|-----------|------|-----------|------|-----------|-------|-----------|-------|-----------|--|
| <ul style="list-style-type: none">• AUDIO IN: 40Hz, 90Hz, 1kHz, 3kHz, 7kHz, 10kHz, 15kHz/-80dBu• Insert a KSP-S tape.• Record each frequency for 15 seconds.• Rewind the tape, and the play back the recorded portilon. | <p>AUDIO OUT connector (terminated by 600Ω)</p> <table><tr><th>Freq.</th><th>Level</th></tr><tr><td>40Hz</td><td>0 ± 3dB</td></tr><tr><td>90Hz</td><td>0 ± 3dB</td></tr><tr><td>1kHz</td><td>0dB(Ref.)</td></tr><tr><td>3kHz</td><td>0 ± 0.9dB</td></tr><tr><td>7kHz</td><td>0 ± 0.9dB</td></tr><tr><td>10kHz</td><td>0 ± 1.5dB</td></tr><tr><td>15kHz</td><td>0 ± 1.5dB</td></tr></table> | Freq. | Level | 40Hz | 0 ± 3dB | 90Hz | 0 ± 3dB | 1kHz | 0dB(Ref.) | 3kHz | 0 ± 0.9dB | 7kHz | 0 ± 0.9dB | 10kHz | 0 ± 1.5dB | 15kHz | 0 ± 1.5dB | |
| Freq. | Level | | | | | | | | | | | | | | | | | |
| 40Hz | 0 ± 3dB | | | | | | | | | | | | | | | | | |
| 90Hz | 0 ± 3dB | | | | | | | | | | | | | | | | | |
| 1kHz | 0dB(Ref.) | | | | | | | | | | | | | | | | | |
| 3kHz | 0 ± 0.9dB | | | | | | | | | | | | | | | | | |
| 7kHz | 0 ± 0.9dB | | | | | | | | | | | | | | | | | |
| 10kHz | 0 ± 1.5dB | | | | | | | | | | | | | | | | | |
| 15kHz | 0 ± 1.5dB | | | | | | | | | | | | | | | | | |
| | <ul style="list-style-type: none">• When 7 through 15kHz level doesn't meet the specification.<ul style="list-style-type: none">1. AUDIO IN: no signal2. Connect the AC voltmeter as follows: CH-1: TP601/VA-76(J-2) GND: TP602/VA-76(J-2) CH-2: TP701/VA-76(K-2) GND: TP702/VA-76(K-2)3. Insert a KSP-S tape.4. REC mode.5. Readjust the bias. bias voltage: 8 through 15mVrms NOTE: When high level frequency is lower than the specification, lower the bias voltage.6. Check that the frequency response meets the specification after REC/PB modes. | <p>CH-1: ●RV201/SY-131A(B-2) CH-2: ●RV202/SY-131A(B-2)</p> | | | | | | | | | | | | | | | | |

| | | |
|--|---|--|
| | <ul style="list-style-type: none"> When 15kHz level doesn't meet the specification. <ol style="list-style-type: none"> Connect the AC voltmeter as follows: CH-1: TP604/VA-76(M-2) CH-2: TP704/VA-76(L-2) AUDIO IN CH-1 connector: 15kHz, -80dBu Insert a KSP-S tape. REC mode. Read the indication of the AC voltmeter. Adjust the 15kHz level to meet the specification. Check that the frequency response meets the specification after REC/PB modes. | CH-1: ●RV605/VA-76(M-3) CH-2: ●RV705/VA-76(L-3) |
|--|---|--|

10-16. DUB OVERALL FREQUENCY RESPONSE ADJUSTMENT (SP TAPE/NR OFF)

| machine conditions for adjustment | specification | adjustment | | | | | | | | | | | | | | | | |
|--|--|----------------------------|-------|------|---------|------|---------|------|------------|------|-----------|------|-----------|-------|-----------|-------|-----------|--|
| <p>Step 1</p> <ul style="list-style-type: none">• AUDIO IN CH-1: 40Hz, 90Hz, 1kHz, 3kHz, 7kHz, 10kHz, 15kHz/-80dBu• Insert a KSP-S tape.• Dub record each frequency respectively for 15 seconds.• Rewind the tape, and then play back the dub recorded portion. | <p>CH-1 AUDIO OUT connector (terminated by 600Ω)</p> <table><tr><th>Freq.</th><th>Level</th></tr><tr><td>40Hz</td><td>0 ± 3dB</td></tr><tr><td>90Hz</td><td>0 ± 2dB</td></tr><tr><td>1kHz</td><td>0dB(Ref.)</td></tr><tr><td>3kHz</td><td>0 ± 0.9dB</td></tr><tr><td>7kHz</td><td>0 ± 0.9dB</td></tr><tr><td>10kHz</td><td>0 ± 1.5dB</td></tr><tr><td>15kHz</td><td>0 ± 1.5dB</td></tr></table> | Freq. | Level | 40Hz | 0 ± 3dB | 90Hz | 0 ± 2dB | 1kHz | 0dB(Ref.) | 3kHz | 0 ± 0.9dB | 7kHz | 0 ± 0.9dB | 10kHz | 0 ± 1.5dB | 15kHz | 0 ± 1.5dB | |
| Freq. | Level | | | | | | | | | | | | | | | | | |
| 40Hz | 0 ± 3dB | | | | | | | | | | | | | | | | | |
| 90Hz | 0 ± 2dB | | | | | | | | | | | | | | | | | |
| 1kHz | 0dB(Ref.) | | | | | | | | | | | | | | | | | |
| 3kHz | 0 ± 0.9dB | | | | | | | | | | | | | | | | | |
| 7kHz | 0 ± 0.9dB | | | | | | | | | | | | | | | | | |
| 10kHz | 0 ± 1.5dB | | | | | | | | | | | | | | | | | |
| 15kHz | 0 ± 1.5dB | | | | | | | | | | | | | | | | | |
| <p>Step 2</p> <ul style="list-style-type: none">• When the specification in step 1 is not satisfied. | <p>TP601/VA-76(J-2) (GND: TP602/VA-76(J-2))</p> <p>Adjust so that the level in the REC mode is almost equal to that in the DUB mode.</p> | <p>●RV205/SY-131A(B-2)</p> | | | | | | | | | | | | | | | | |

10-17. OVERALL FREQUENCY RESPONSE ADJUSTMENT (CONVENTIONAL TAPE)

| machine conditions for adjustment | specification | adjustment | | | | | | | | | | | | | | | | |
|---|---|------------|-------|------|---------|------|---------|------|---------|------|-----------|------|-----------|-------|-----------|-------|-----------|-------------------------|
| <ul style="list-style-type: none">• AUDIO IN: 40Hz, 90Hz, 1kHz, 3kHz, 7kHz, 10kHz, 15kHz/-80dBu• Insert a KCS tape.• Record each frequency respectively for 15 seconds.• Rewind the tape, and then play back the recorded portion. | <p>AUDIO OUT connector (terminated by 600 Ω)</p> <table><tr><th>Freq.</th><th>Level</th></tr><tr><td>40Hz</td><td>0 ± 1dB</td></tr><tr><td>90Hz</td><td>0 ± 3dB</td></tr><tr><td>1kHz</td><td>0(Ref.)</td></tr><tr><td>3kHz</td><td>0 ± 1.5dB</td></tr><tr><td>7kHz</td><td>0 ± 1.5dB</td></tr><tr><td>10kHz</td><td>0 ± 1.5dB</td></tr><tr><td>15kHz</td><td>0 ± 1.5dB</td></tr></table> | Freq. | Level | 40Hz | 0 ± 1dB | 90Hz | 0 ± 3dB | 1kHz | 0(Ref.) | 3kHz | 0 ± 1.5dB | 7kHz | 0 ± 1.5dB | 10kHz | 0 ± 1.5dB | 15kHz | 0 ± 1.5dB | <p>RV801/VA-76(K-7)</p> |
| Freq. | Level | | | | | | | | | | | | | | | | | |
| 40Hz | 0 ± 1dB | | | | | | | | | | | | | | | | | |
| 90Hz | 0 ± 3dB | | | | | | | | | | | | | | | | | |
| 1kHz | 0(Ref.) | | | | | | | | | | | | | | | | | |
| 3kHz | 0 ± 1.5dB | | | | | | | | | | | | | | | | | |
| 7kHz | 0 ± 1.5dB | | | | | | | | | | | | | | | | | |
| 10kHz | 0 ± 1.5dB | | | | | | | | | | | | | | | | | |
| 15kHz | 0 ± 1.5dB | | | | | | | | | | | | | | | | | |

NOTE: When the specification is not satisfied, perform section 10-10, REC BIAS ADJUSTMENT.
The higher frequency level is lower than the specification, lower the bias voltage.

10-18. REC LEVEL ADJUSTMENT

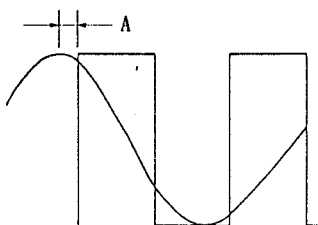
| machine conditions for adjustment | specification | adjustment |
|--|--|--|
| <p>Step 1 (SP level)</p> <ul style="list-style-type: none"> AUDIO IN: 1kHz, -60dBu Insert a KSP-S tape. REC mode→REW mode→PB mode | <p>CH-1: TP604/VA-76(M-2) CH-2: TP704/VA-76(L-2)</p> <p>* Read the value in the REC mode. Level = AdBu (approx. +4dBu)</p> <p>CH-1: TP671/VA-76(M-5) CH-2: TP771/VA-76(L-5)</p> <p>* Play back the recorded portion, and read the difference between the value in TP671 or TP771 and ref. level (-10dBu). Difference from ref. level = BdB</p> | |
| <ul style="list-style-type: none"> REC mode (again) | <p>CH-1: TP604/VA-76(M-2) CH-2: TP704/VA-76(L-2)</p> <p>[Spec.] $C = A - B \pm 0.2\text{dBu}$</p> | <p>CH-1: RV607/VA-76(M-3) CH-2: RV707/VA-76(L-3)</p> |
| <p>Step 2 (conventional level)</p> <ul style="list-style-type: none"> AUDIO IN: 1kHz, -60dBu Insert a KCS tape. REC mode→REW mode→PB mode | <p>CH-1: TP604/VA-76(M-2) CH-2: TP704/VA-76(L-2)</p> <p>* Read the value in the REC mode. Level = AdBu (approx. +2dBu)</p> <p>CH-1: TP671/VA-76(M-5) CH-2: TP771/VA-76(L-5)</p> <p>* Play back the recorded portion, and read the difference between the value in TP671 or TP771 and ref. level (-10dBu). Difference from ref. level = BdB</p> | |
| <ul style="list-style-type: none"> REC mode (again) | <p>CH-1: TP604/VA-76(M-2) CH-2: TP704/VA-76(L-2)</p> <p>[Spec.] $C = A - B \pm 0.2\text{dBu}$</p> | <p>CH-1: RV606/VA-76(M-3) CH-2: RV706/VA-76(L-3)</p> |

10-19. OVERALL FREQUENCY RESPONSE CHECK (SP TAPE/NR ON)

| machine conditions for adjustment | specification | adjustment | | | | | | | | | | | | | | | | |
|--|--|------------|-------|------|---------|------|---------|------|-----------|------|-----------|------|-----------|-------|-----------|-------|-----------|--|
| <ul style="list-style-type: none">• AUDIO IN: 40Hz, 90Hz, 1kHz, 3kHz, 7kHz, 10kHz, 15kHz/-80dBu• Insert a KSP-S tape.• DOLBY NR SW: ON• Record the each frequency for approximately 15 seconds.• Rewind the tape, and then play back the recorded portion. | <p>AUDIO OUT connector (terminated by 600Ω)</p> <table><tr><th>Freq.</th><th>Level</th></tr><tr><td>40Hz</td><td>0 ± 3dB</td></tr><tr><td>90Hz</td><td>0 ± 3dB</td></tr><tr><td>1kHz</td><td>0dB(Ref.)</td></tr><tr><td>3kHz</td><td>0 ± 1.8dB</td></tr><tr><td>7kHz</td><td>0 ± 1.8dB</td></tr><tr><td>10kHz</td><td>0 ± 1.7dB</td></tr><tr><td>15kHz</td><td>0 ± 1.8dB</td></tr></table> | Freq. | Level | 40Hz | 0 ± 3dB | 90Hz | 0 ± 3dB | 1kHz | 0dB(Ref.) | 3kHz | 0 ± 1.8dB | 7kHz | 0 ± 1.8dB | 10kHz | 0 ± 1.7dB | 15kHz | 0 ± 1.8dB | |
| Freq. | Level | | | | | | | | | | | | | | | | | |
| 40Hz | 0 ± 3dB | | | | | | | | | | | | | | | | | |
| 90Hz | 0 ± 3dB | | | | | | | | | | | | | | | | | |
| 1kHz | 0dB(Ref.) | | | | | | | | | | | | | | | | | |
| 3kHz | 0 ± 1.8dB | | | | | | | | | | | | | | | | | |
| 7kHz | 0 ± 1.8dB | | | | | | | | | | | | | | | | | |
| 10kHz | 0 ± 1.7dB | | | | | | | | | | | | | | | | | |
| 15kHz | 0 ± 1.8dB | | | | | | | | | | | | | | | | | |

NOTE: When the specification is not satisfied, perform section 10-15, OVERALL FREQUENCY RESPONSE ADJUSTMENT.

10-20. PILOT TONE REC ADJUSTMENT

| machine conditions for adjustment | specification | adjustment |
|--|---|--|
| <ul style="list-style-type: none"> AUDIO IN: no signal DOLBY NR sw: ON Insert a KSP-S tape. REC mode | TP604/VA-76(M-2) TP704/VA-76(L-2) -22 ± 1dBs | CH-1: ⌚RV872/VA-76(L-7) CH-2: ⌚RV873/VA-76(K-7) |
| | CH-1: TP872/VA-76(K-7) CH-2: TP873/VA-76(J-6)  A = 0 ± 2.7msec | ⌚RV871/VA-76(L-7) |

SECTION 11

VIDEO SYSTEM ALIGNMENT

[Equipment Required]

- Dual Trace Oscilloscope.
- Frequency Counter.
- Signal Generator/Sweep Generator
- DC Voltmeter
- Vectorscope
- Current Probe
- Blank Tapes: KCS and KSP-S tapes
- Alignment Tape: RR5-1SD PAL (Parts No. 8-960-036-80)—SP tape—

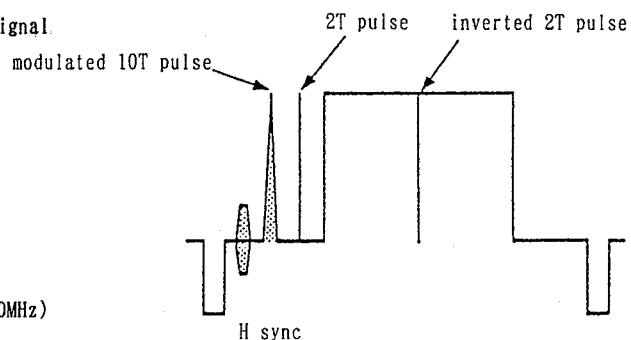
| TIME | VIDEO | AUDIO | NR | TIME CODE |
|------|--|--------------|-----|-----------|
| 5 | Color bars | _____ | OFF | _____ |
| 3 | Gated sweep (B/W) | 1kHz, 0dB | | _____ |
| 3 | Gated sweep (color) | 10kHz, -10dB | | _____ |
| 3 | Pulse & bar (color) (MOD 10T and inverted 2T) | 1kHz, -20dB | | _____ |
| | | 40Hz, -20dB | | _____ |
| | | 7kHz, -20dB | | _____ |
| | | 10kHz, -20dB | | _____ |
| | | 15kHz, -20dB | | _____ |
| 3 | Monoscope (color) | 1kHz, -20dB | ON | _____ |
| | | 15kHz, -20dB | | _____ |
| 3 | Pseudo color bars | _____ | OFF | Time code |

• Alignment Tape: RR5-2SB PAL (Parts No. 8-960-020-62)—Conventional tape—

| TIME | VIDEO | AUDIO | TIME CODE |
|------|---------------------|--------------|-----------|
| 5 | Color bars | 3kHz, 0dB | 1kHz |
| 5 | R-F sweep | _____ | _____ |
| 5 | Monoscope | _____ | _____ |
| 2.5 | Modulated 20T pulse | 1kHz, 0dB | _____ |
| 2.5 | R-F 8MHz | 10kHz, -10dB | _____ |

[Video Signals Required]

- Color Bar Signal : 75% color bar signal
- Pulse & bar signal :

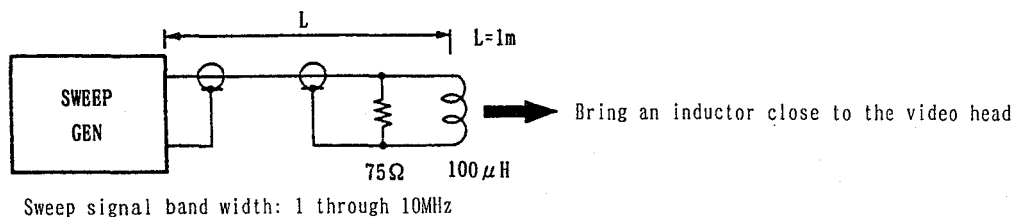


- RF Sweep signal : (1MHz through 10MHz)
- Gated Sweep Signal : (Up to 6MHz)

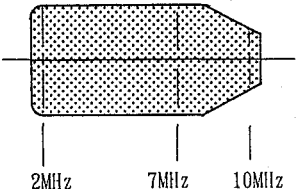
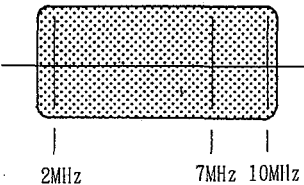
11-1. PLAYBACK SYSTEM ADJUSTMENT

11-1-1. PB RF Frequency Response Adjustment

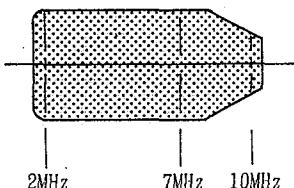
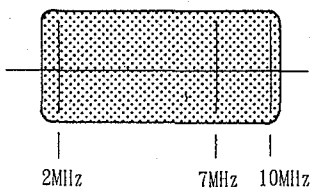
Stop the rotation of the head drum without a cassette tape, and L-couple sweep signal with the video head by using an inductor (approx. $100\mu\text{H}$) in order to perform this adjustment.



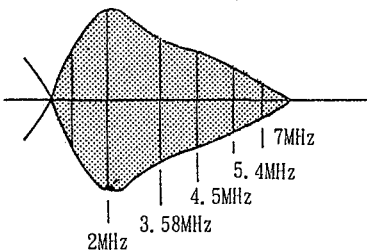
Step 1 CH-A PB amplifier adjustment

| machine conditions for adjustment | specification | adjustments | | | | |
|--|---|-------------|------|------------|-----------|---|
| <ul style="list-style-type: none">• Short between TP909/VA-76(J-7) and E901/VA-76(K-8) with a shorting clip.• Couple the sweep signal with CH-A video head.• Adjust coupling so that 2MHz level is approximately 50mVp-p at TP201/RP-38A(A-1). | <p>TP201/RP-38A(A-1)</p>  <table border="1"><tr><td>2MHz</td><td>7MHz</td></tr><tr><td>100% (REF)</td><td>100% ± 2%</td></tr></table> | 2MHz | 7MHz | 100% (REF) | 100% ± 2% | <p>RV205/RP-38A(A-1)</p> <p>TRIG: TRIG OUT of SWEEP GEN</p> |
| 2MHz | 7MHz | | | | | |
| 100% (REF) | 100% ± 2% | | | | | |
| <ul style="list-style-type: none">• Turn RV15/VA-76(H-2) to its mechanical center position temporarily.• Short between TP18/VA-76(G-2) and B6/VA-76(G-3) with a shorting clip.• After the adjustment is completed, remove the shorting clip. | <p>TP15/VA-76(H-3)</p>  <table border="1"><tr><td>2MHz</td><td>7MHz</td></tr><tr><td>100% (REF)</td><td>110% ± 5%</td></tr></table> | 2MHz | 7MHz | 100% (REF) | 110% ± 5% | <p>RV17/VA-76(H-4)</p> <p>TRIG: TRIG OUT of SWEEP GEN</p> |
| 2MHz | 7MHz | | | | | |
| 100% (REF) | 110% ± 5% | | | | | |

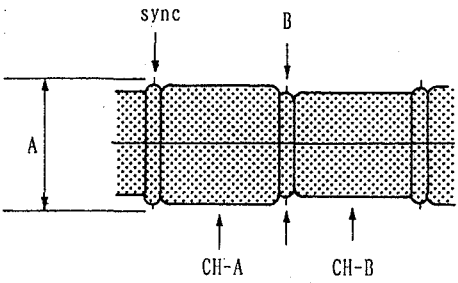
Step 2 CH-B PB amplifier adjustment

| machine conditions for adjustment | specification | adjustments | | | | |
|--|--|-------------|------|------------|-----------|---|
| <ul style="list-style-type: none">• Short between TP909/VA-76(J-7) and E901/VA-76(K-8) with a shorting clip.• Couple the sweep signal with CH-B video head.• Adjust coupling so that 2MHz level is approximately 50mVp-p at TP202/RP-38A(A-1). | <p>TP202/RP-38A(A-1)</p>  <table><tr><td>2MHz</td><td>7MHz</td></tr><tr><td>100% (REF)</td><td>100% ± 2%</td></tr></table> | 2MHz | 7MHz | 100% (REF) | 100% ± 2% | <p>RV206/RP-38A(A-2)</p> <p>TRIG: TRIG OUT of SWEEP GEN</p> |
| 2MHz | 7MHz | | | | | |
| 100% (REF) | 100% ± 2% | | | | | |
| <ul style="list-style-type: none">• Turn RV16/VA-76(H-2) to its mechanical center position temporarily.• Short between TP18/VA-76(G-2) and TP4/VA-76(H-2) with a shorting clip.• After the adjustment is completed, remove the shorting clip. | <p>TP15/VA-76(H-3)</p>  <table><tr><td>2MHz</td><td>7MHz</td></tr><tr><td>100% (REF)</td><td>110% ± 5%</td></tr></table> | 2MHz | 7MHz | 100% (REF) | 110% ± 5% | <p>RV18/RP-76(G-3)</p> <p>TRIG: TRIG OUT of SWEEP GEN</p> |
| 2MHz | 7MHz | | | | | |
| 100% (REF) | 110% ± 5% | | | | | |

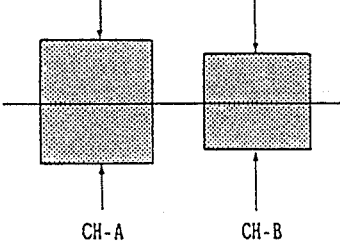
11-1-3. PB RF Frequency Response Check (Middle)

| machine conditions for adjustment | specification | adjustments | | | | | | | | | | | | |
|--|--|-------------|-------|-------|------------|----------|----------|---------|----------|---------|----------|-------|---------|--|
| <ul style="list-style-type: none">• Short between TP2/SV-108A(G-3) and GND with a shorting clip.• Play back the RF sweep signal portion on the alignment tape RR5-2SB PAL.• Adjust the TRAKING control volume so that the RF level at TP15/VA-76(H-3) is maximum.• After the check is completed, remove the shoring clip. | <p>TP15/VA-76(H-3)</p>  <table><thead><tr><th>Frequency</th><th>Level</th></tr></thead><tbody><tr><td>2 MHz</td><td>100% (REF)</td></tr><tr><td>3.58 MHz</td><td>80 ± 10%</td></tr><tr><td>4.5 MHz</td><td>70 ± 10%</td></tr><tr><td>5.4 MHz</td><td>45 ± 10%</td></tr><tr><td>7 MHz</td><td>35 ± 5%</td></tr></tbody></table> | Frequency | Level | 2 MHz | 100% (REF) | 3.58 MHz | 80 ± 10% | 4.5 MHz | 70 ± 10% | 5.4 MHz | 45 ± 10% | 7 MHz | 35 ± 5% | |
| Frequency | Level | | | | | | | | | | | | | |
| 2 MHz | 100% (REF) | | | | | | | | | | | | | |
| 3.58 MHz | 80 ± 10% | | | | | | | | | | | | | |
| 4.5 MHz | 70 ± 10% | | | | | | | | | | | | | |
| 5.4 MHz | 45 ± 10% | | | | | | | | | | | | | |
| 7 MHz | 35 ± 5% | | | | | | | | | | | | | |

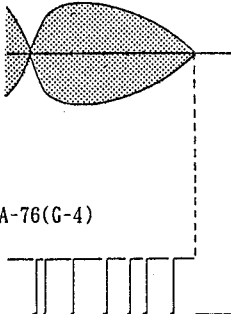
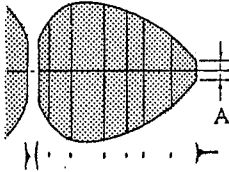
11-1-4. PB Y RF Channel Balance/Level Adjustment

| machine conditions for adjustment | specification | adjustments |
|--|---|--|
| <ul style="list-style-type: none"> • Turn RV30/VA-76(H-5) to the mechanical center position temporarily. • Play back the color-bar signal portion on the alignment tape RR5-1SD PAL. • Adjust the TRACKING control volume so that the RF level at TP11/VA-76(G-6) is maximum. | <p>TP11/VA-76(G-6)</p>  <p>$A = B = 0.3 \pm 0.02V_{p-p}$</p> | <p>CH-A: ●RV15/VA-76(H-2) CH-B: ●RV16/VA-76(H-2)</p> <p>TRIG: TP18/VA-76(G-2)</p> |

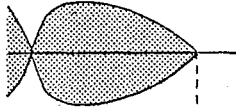

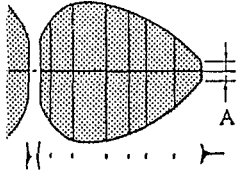
11-1-5. PB Chroma RF Channel Balance/Level Adjustment

| machine conditions for adjustment | specification | adjustments |
|--|--|---|
| <ul style="list-style-type: none"> • Play back the color-bar signal portion on the alignment tape RR5-1SD PAL. • Adjust the TRACKING control volume so that the RF level at TP1/CR-35(C-4) is maximum. | <p>TP1/CR-35(C-4)</p>  <p>CH-A CH-B</p> <p>CH-A Level = CH-B Level = $0.2 \pm 0.01V_{p-p}$</p> | <p>CH-A: RV20/VA-76(G-2)</p> <p>CH-B: RV19/VA-76(G-3)</p> <p>TRIG: TP6/CR-35(D-4)</p> |

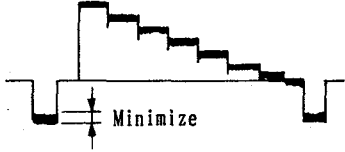
11-2. DROPOUT COMPENSATOR SENSITIVITY ADJUSTMENT

| machine conditions for adjustment | specification | adjustments |
|--|--|--|
| <ul style="list-style-type: none"> • Play back the RF sweep signal on the alignment tape RR5-2SB PAL. • TRACKING volume: center clicked position • Short between TP2/SV-108A(G-3) and E2/SV-108A(B-1) with a shorting clip. • After the adjustment is completed, remove the shorting clip. | <p>CH-1: TP11/VA-76(G-6)</p>  <p>CH-2: TP19/VA-76(G-4)</p> <p>oscilloscope: ADD mode</p>  <p>$A = 30 \pm 4 \text{ mV}_{p-p}$</p> | <p>RV25/VA-76(H-7)</p> <p>TRIG: EXT TP18/VA-76(G-2)</p> |

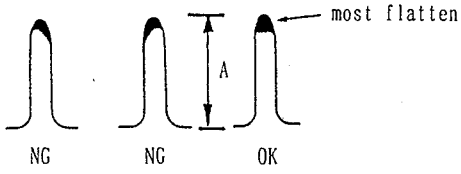
11-3. GUARD BAND PULSE ADJUSTMENT

| machine conditions for adjustment | specification | adjustments |
|--|--|---|
| <ul style="list-style-type: none"> • Play back the RF sweep signal portion on the alignment tape RR5-2SB PAL. • TRACKING volume: center clicked position • Short between TP2/SV-108A(G-3) and E2/SV-108A(B-1) with a shorting clip. • After the adjustment is completed, remove the shorting clip. | <p>CH-1: TP11/VA-76(G-6)</p>  <p>CH-2: TP19/VA-76(G-4)</p>  <p>oscilloscope: ADD mode</p>  <p>$A = 30 \pm 4\text{mVp-p}$</p> | <p>RV27/VA-76(G-7)</p> <p>TRIG: TP18/VA-76(G-2)</p> |

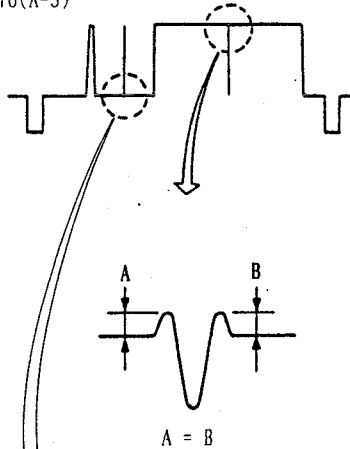
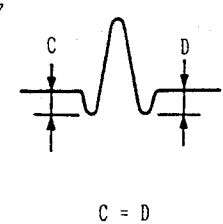
11-4. CARRIER BALANCE ADJUSTMENT

| machine conditions for adjustment | specification | adjustments |
|---|--|------------------------|
| <ul style="list-style-type: none"> • Play back the color-bar signal portion on the alignment tape RR5-2SB PAL. | <p>TP301/VA-76(A-5)</p>  | <p>RV11/VA-76(G-6)</p> |

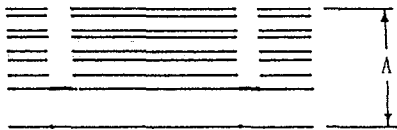
11-5. SP MODE DETECTOR CIRCUIT ADJUSTMENT

| machine conditions for adjustment | specification | adjustments |
|--|--|-----------------------|
| <ul style="list-style-type: none"> • Unsolder and open the SL4/VA-76. • Play back the color-bar signal portion on the alignment tape RR5-2SB PAL. • After the adjustment is completed, short SL4/VA-76. | <p>TP6/VA-76(G-8)</p>  <p>(Reference) $A \geq 1.5V_{p-p}$</p> | <p>RV1/VA-76(H-8)</p> |

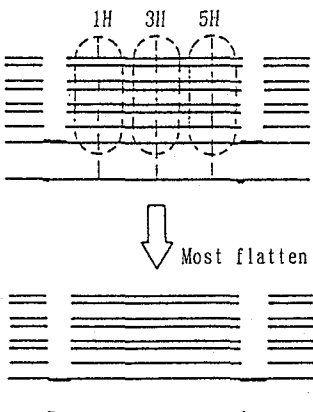
11-6. PB Y PHASE EQUALIZE PRE-ADJUSTMENT (SP and High modes)

| machine conditions for adjustment | specification | adjustments |
|---|---|------------------------|
| <p>Step 1</p> <ul style="list-style-type: none"> • Play back the pulse & bar signal portion on the alignment tape RR5-1SD PAL. | <p>TP301/VA-76(A-5)</p>  <p>A = B</p> | <p>RV12/VA-76(D-6)</p> |
| <p>Step 2</p> <ul style="list-style-type: none"> • Play back the pulse & bar signal portion on the alignment tape RR5-2SB PAL. |  <p>C = D</p> | <p>RV13/VA-76(D-6)</p> |

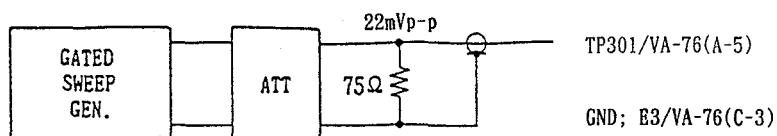
11-7. PB Y OUTPUT LEVEL PRE-ADJUSTMENT

| machine conditions for adjustment | specification | adjustments |
|---|---|-----------------|
| <ul style="list-style-type: none"> • Play back the color-bar signal portion on the alignment tape RR5-1SD PAL. | TP301/VA-76(A-5)  $A = 0.4 \pm 0.02V_{p-p}$ | RV26/VA-76(C-4) |

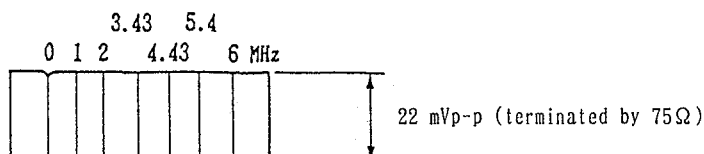
11-8. DROPOUT COMPENSATOR CIRCUIT DC BALANCE ADJUSTMENT

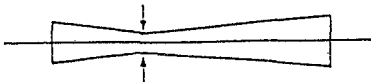
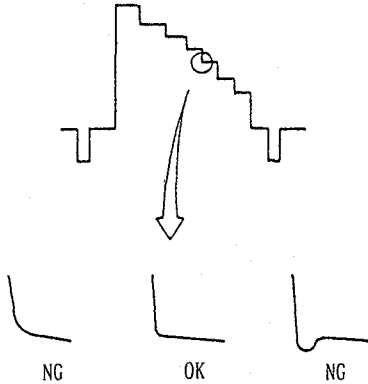
| machine conditions for adjustment | specification | adjustments |
|--|---|---|
| <ul style="list-style-type: none"> • Play back the Pseudo CB for DOC adjustment signal on the alignment tape RR5-1SD PAL. | TP301/VA-76(A-5)  Adjust RV24 and RV23 so that the waveform at 5H portion is flatten. | Level: RV24/VA-76(A-5) DC Bias: RV23/VA-76(A-4) TRIG: TP18/VA-76(G-2) |

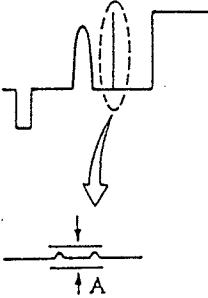
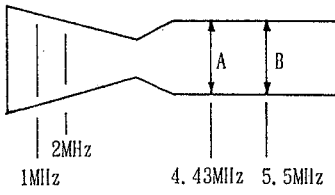
11-9. Y NOISE CANCELLER ADJUSTMENT




SWEEP SIGNAL LEVEL at TP301



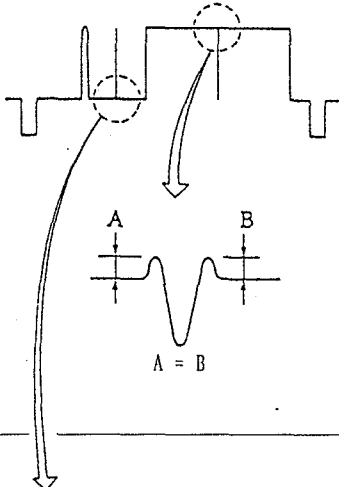
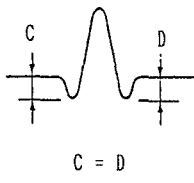
| machine conditions for adjustment | specification | adjustments |
|--|--|--|
| <p>Step 1</p> <ul style="list-style-type: none"> • Unsolder and open SL301/VA-76. • Short between TP909/VA-76(J-7) and E901/VA-76(K-8), and between TP402/VA-76(B-2) and E3/VA-76(C-3) respectively. • Connect the sweep signal as shown in the above. • Fully turn RV302/VA-76(B-5) in the clockwise direction from the soldering side. | <p>TP302/VA-76(B-6)</p>  <p>Minimize the amplitude of the cross point (at 2MHz).</p> | <p>RV301/VA-76(A-5)</p> <p>TRIG: TRIG OUT of SWEEP GEN</p> |
| <p>Step 2</p> <ul style="list-style-type: none"> • Short between TP300/VA-76(A-5) and TP301/VA-76(A-5) with a shorting clip. • Play back the color-bar signal portion on the alignment tape RR5-1SD PAL. | <p>TP302/VA-76(B-6)</p>  | <p>RV302/VA-76(B-5)</p> |

| | | |
|--|---|-------------------------|
| <p>Step 3</p> <ul style="list-style-type: none"> • Play back the pulse & bar signal portion on the alignment tape RR5-1SD PAL. | <p>TP302/VA-76(B-6)</p>  <p>TP306/VA-76(C-6)</p> <p>Minimize the A level.</p> | <p>RV303/VA-76(B-6)</p> |
| <p>Step 4</p> <ul style="list-style-type: none"> • POWER SW: OFF • Supply the gated sweep signal. • Turn on the POWER sw. • After the adjustment is completed, solder SL301/VA-76. | <p>TP303/VA-76(C-8)</p>  <p>A = B</p> | <p>RV304/VA-76(C-6)</p> |

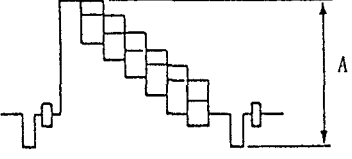
11-10. CHROMA NOISE CANCELLER ADJUSTMENT

| machine conditions for adjustment | specification | adjustments |
|---|---|---|
| <ul style="list-style-type: none"> • Play back the color-bar signal portion on the alignment tape RR5-1SD PAL. | <p>TP405/VA-76(C-7)</p>  <p>Minimize the burst portion.</p> | <p>RV403/VA-76(C-7)</p> <p>TRIG: TP303/VA-76(C-8)</p> |

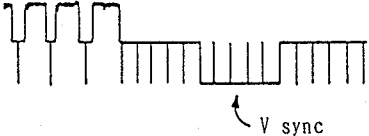
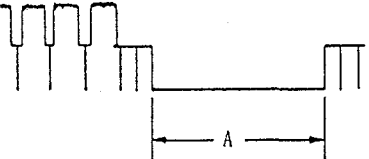
11-11. PB Y PHASE EQUALIZER ADJUSTMENT (SP and High modes)

| machine conditions for adjustment | specification | adjustments |
|---|--|------------------------|
| <p>Step 1</p> <ul style="list-style-type: none"> • Play back the pulse & bar signal portion on the alignment tape RR5-1SD PAL. | <p>TP303/VA-76(C-8)</p>  | <p>RV12/VA-76(D-6)</p> |
| <p>Step 2</p> <ul style="list-style-type: none"> • Play back the pulse & bar signal portion on the alignment tape RR5-2SB PAL. |  | <p>RV13/VA-76(D-6)</p> |

11-12. Y OUTPUT LEVEL ADJUSTMENT

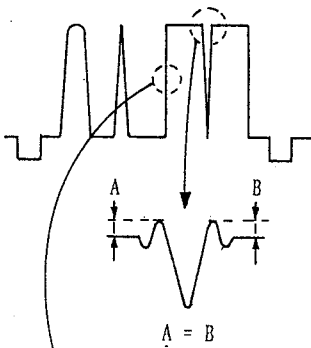
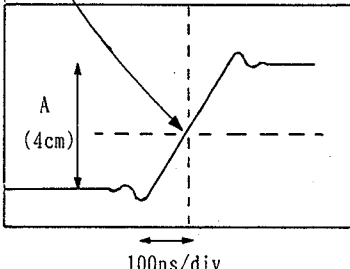
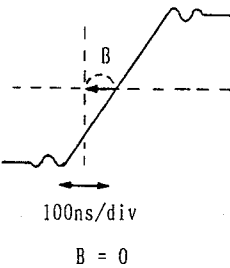
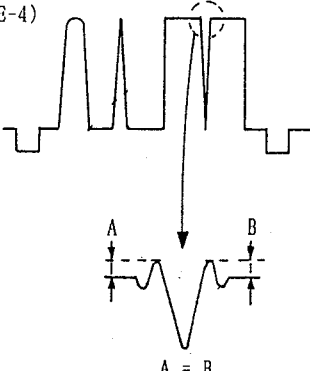
| machine conditions for adjustment | specification | adjustments |
|---|---|------------------------|
| <ul style="list-style-type: none"> • Play back the color-bar signal portion on the alignment tape RR5-1SD PAL. | <p>VIDEO OUT connector (terminated by 75Ω)</p>  <p>$A = 1.0 \pm 0.02V_{p-p}$</p> | <p>RV26/VA-76(C-4)</p> |

11-13. FALSE VD PULSE WIDTH CHECK

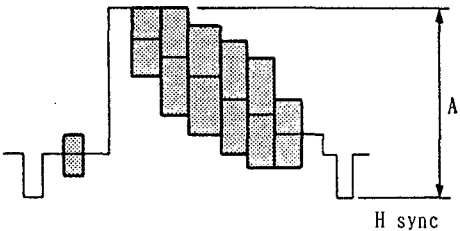
| machine conditions for adjustment | specification | adjustments |
|---|--|------------------------------|
| <ul style="list-style-type: none"> • Play back the color-bar signal portion on the alignment tape RR5-1SD PAL. • PAUSE mode | <p>TP303/VA-76(C-8)</p> <p>(PLAY mode)</p>  <p>V sync</p> <p>(PAUSE mode)</p>  <p>$A = 320 \pm \frac{8}{3} \mu sec$</p> | <p>TRIG: TP18/VA-76(C-2)</p> |

11-14. MODULATOR SYSTEM ADJUSTMENT

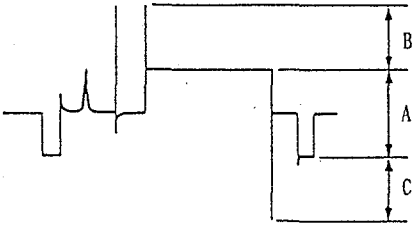
11-14-1. REC Y PHASE EQUALIZER ADJUSTMENT

| machine conditions for adjustment | specification | adjustments |
|---|--|--|
| <p>Step 1</p> <ul style="list-style-type: none"> • VIDEO IN: pulse & bar signal • Insert a KSP-S tape, and then put the unit into the EE mode. • Turn RV9/CP-135(E-3) to the mechanical center position. • S1/CP-135(F-1): ON | <p>TP4/CP-135(E-4)</p>  <p>A = B</p> | <p>Pre-adjustment</p> <p>RV8/CP-135(F-2)</p> |
| <p>Step 2</p> <ul style="list-style-type: none"> • S1/CP-135(F-1): OFF |  <p>100ns/div</p> <p>The rising point of bar should be center on the monitor of oscilloscope.</p> | <p>Oscilloscope:</p> <p>H, V-POSITION</p> |
| <p>Step 3</p> <ul style="list-style-type: none"> • S1/CP-135(F-2): ON | <p>Oscilloscope</p>  <p>100ns/div</p> <p>B = 0</p> | <p>RV9/CP-135(F-3)</p> |
| <p>Step 4</p> <ul style="list-style-type: none"> • Perform Step 1 again. | <p>TP4/CP-135(E-4)</p>  <p>A = B</p> | <p>RV8/CP-135(F-2)</p> |

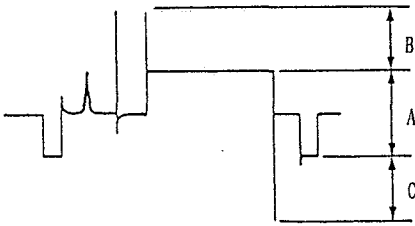
11-14-4. FM Deviation Adjustment

| machine conditions for adjustment | specification | adjustments |
|---|--|-----------------------|
| <ul style="list-style-type: none"> • VIDEO IN: color-bar signal • Insert a KSP-S tape. • REC mode. • Play back the self-recorded portion of the tape. | <p>VIDEO OUT connector (terminated by 75Ω)</p>  <p>$A = 1.0 \pm 0.1V_{p-p}$</p> <p>Adjust in the REC mode and check in the PB mode.</p> | <p>RV6/VA-76(F-6)</p> |

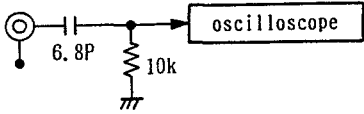
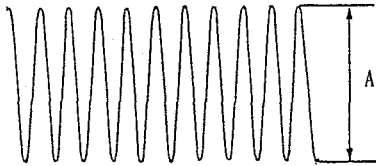
11-14-5. White/Dark Clip Adjustment (SP mode)

| machine conditions for adjustment | specification | adjustments |
|---|---|---|
| <ul style="list-style-type: none"> • VIDEO IN: pulse & bar (with burst) signal • Insert a KSP-S tape. • EE mode. | <p>TP22/VA-76(B-4)</p>  <p> $A = 100\% \text{ (reference)}$ $B = 130 \pm 5\%$ $C = 120 \pm 5\%$ </p> | <p>Spec B: RV9/VA-76(D-5)</p> <p>Spec C: RV7/VA-76(E-6)</p> <p>TRIG: TP303/VA-76(C-8)</p> |

11-14-6. White/Dark Clip Adjustment (High-band mode)

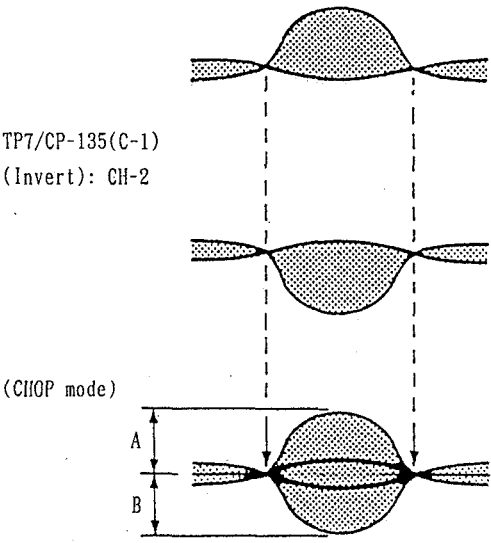
| machine conditions for adjustment | specification | adjustments |
|---|---|--|
| <ul style="list-style-type: none"> • VIDEO IN: pulse & bar (with burst) signal • Insert a KCS tape. • EE mode. | <p>TP22/VA-76(E-4)</p>  <p> $A = 100\%$ (reference) $B = 120 \pm \%$ $C = 100 \pm \%$ </p> | <p>Spec B: RV10/VA-76(E-5) Spec C: RV8/VA-76(D-6)</p> <p>TRIG: TP303/VA-76(C-8)</p> |

11-14-7. REC HF Balance Adjustment

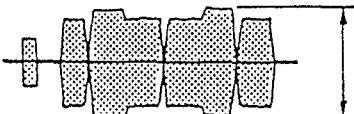
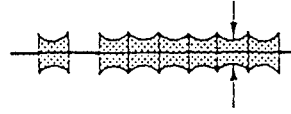
| machine conditions for adjustment | specification | adjustments |
|--|---|--|
| <ul style="list-style-type: none"> • VIDEO IN: color-bar signal • Insert a KSP-S tape. • EE mode. • Short between TP21/VA-76(F-5) and E2/VA-76(F-5) with a shorting clip. • Connect the high-pass filter to TP1. (Use 6.8pF capacitor and 10kΩ resistor) as shown below. <p>TP4/VA-76(H-2)</p>  <ul style="list-style-type: none"> • Detect the output of the high-pass filter by the oscilloscope. | <p>TP3/VA-76(D-2)</p>  <p>Maximize the A level.</p> | <p>RV3/VA-76(D-4)</p> <p>TRIG: INT</p> |

11-15. REC Y/C SEPARATOR ADJUSTMENT

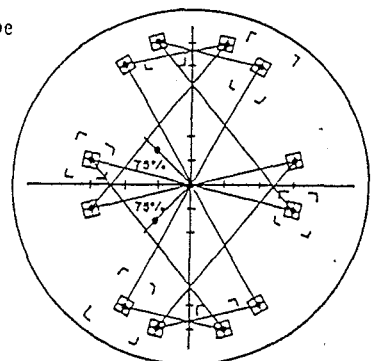
11-15-1. Chroma Correlator Balance Adjustment

| machine conditions for adjustment | specification | adjustments |
|--|---|--|
| <ul style="list-style-type: none"> • VIDEO IN: gated sweep signal • Insert a KSP-S tape. • EE mode. | <p>TP7/CP-135(C-1): C-1</p>  <p>TP7/CP-135(C-1) (Invert): CH-2</p> <p>(CHOP mode)</p> <p>A = B</p> <p>(Similarity figures upper waveform and lower waveform)</p> | <p>RV4/CP-135(D-2)</p> <p>TRIG: TP303/VA-76(C-8)</p> |

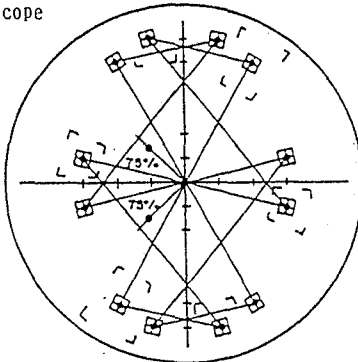

11-15-2. Process Level/Chroma Delay Adjustment

| machine conditions for adjustment | specification | adjustments |
|--|---|---|
| <p>Step 1</p> <ul style="list-style-type: none"> • VIDEO IN: color-bar signal • Insert a KSP-S tape. • EE mode. • Adjust the level to identify each other. • Range CH-1: 1V/m CH-2: 500mV/m | <p>CH-1: TP10/CP-135(C-1) CH-2: TP6/CP-135(D-1)</p>  <p>Adjust the A level at CH-1 to A level at CH-2. (Level at TP10 = 2 × level at TP6)</p> | <p>RV3/CP-135(D-1)</p> <p>TRIG: TP303/VA-76(C-8)</p> |
| <p>Step 2</p> <ul style="list-style-type: none"> • VIDEO IN: color-bar signal • EE mode. • Change the mode of oscilloscope to ADD mode. | <p>CH-1: TP10/CP-135(C-1) CH-2: TP6/CP-135(D-1) (Invert) } ADD mode</p>  <p>Minimize this level.</p> | <p>RV2/CP-135(C-1) (ADD mode) RV3/CP-135(D-1) (CHOP mode)</p> <p>TRIG: TP303/VA-76(C-8)</p> |

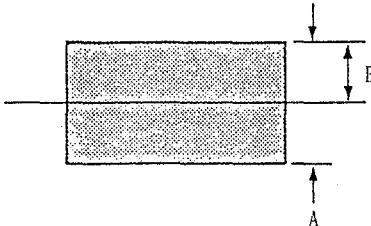
11-15-3. Slice Level Adjustment (1)

| machine conditions for adjustment | specification | adjustments |
|---|--|------------------------|
| <ul style="list-style-type: none"> • VIDEO IN: color-bar signal • Insert a KSP-S tape. • EE mode. • Before adjustment, adjust the phase control and gain control of vectroscope so that the burst spots are located at 75%-burst positions. | <p>TP11/CP-135(D-1)</p> <p>Vectorscope</p>  <p>Each color spots should be in the X-marked positions.</p> | <p>RV7/CP-135(E-1)</p> |

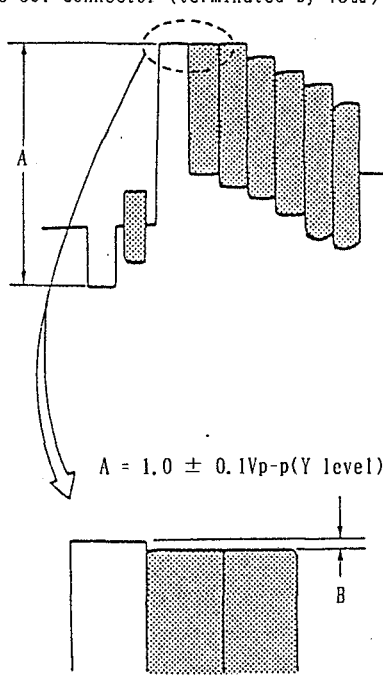
11-15-4. Slice Level Adjustment (2)

| machine conditions for adjustment | specification | adjustments |
|---|---|------------------------|
| <ul style="list-style-type: none"> • VIDEO IN: color-bar signal • Insert a KSP-S tape. • EE mode. • Before adjustment, adjust the phase control and gain control of vectorscope so that the burst spots are located at 75%-burst positions. | <p>TP8/CP-135(D-2)</p> <p>Vectorscope</p>  <p>Each color spots should be in the -marked positions.</p> | <p>RV5/CP-135(D-2)</p> |

11-15-5. Mix Level Adjustment

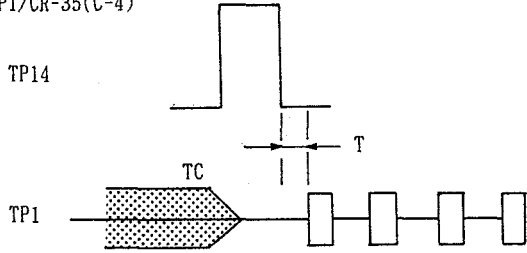
| machine conditions for adjustment | specification | adjustments |
|--|---|--|
| <ul style="list-style-type: none"> • VIDEO IN: color-bar signal • Insert a KSP-S tape. • EE mode. | <p>TP9/CP-135(B-2)</p>  <p>A = 100% (reference) B = 50 ± 2%</p> | <p>RV6/CP-135(B-1)</p> <p>TRIG: TP303/VA-76(C-8)</p> |

11-15-6. EE Y and Chroma Level Adjustment

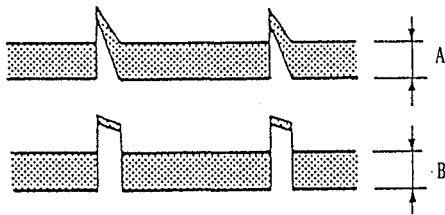
| machine conditions for adjustment | specification | adjustments |
|--|---|--|
| <ul style="list-style-type: none"> • VIDEO IN: color-bar signal • Insert a KSP-S tape. • EE mode. | <p>VIDEO OUT connector (terminated by 75Ω)</p>  <p>$A = 1.0 \pm 0.1V_{p-p} (Y \text{ level})$</p> <p>$B = 0 \pm 20mV \text{ (Chroma level)}$</p> | <p>Y level: RV404/VA-76(E-7)</p> <p>Chroma level: RV405/VA-76(D-7)</p> |

11-16. CHROMA SYSTEM ADJUSTMENT

11-16-1. T/C Mute Pulse Width Adjustment

| machine conditions for adjustment | specification | adjustments |
|--|--|--|
| <ul style="list-style-type: none"> • Play back the pseudo color-bar signal portion on the alignment tape RR5-1SD PAL. | <p>TP14/VA-76(B-1) TP1/CR-35(C-4)</p>  <p>$T = 30 \pm 10 \mu\text{sec}$</p> <p>(The position between V BLK falling edge and starting point of TP1 burst.)</p> | <p>RV401/VA-76(A-1)</p> <p>TRIG: TP18/VA-76(G-2)</p> |

11-16-2. REC 4.43MHz REF Adjustment

| machine conditions for adjustment | specification | adjustments |
|---|---|----------------------|
| <ul style="list-style-type: none"> • VIDEO IN: color-bar signal • BE mode | <p>TP10/CR-35(B-3)</p>  <p>$A = B$</p> | <p>T1/CR-35(A-2)</p> |

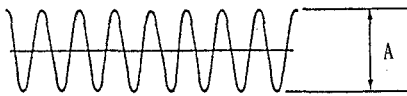
11-16-3. PB REF OSC Adjustment

| machine conditions for adjustment | specification | adjustments |
|---|--|-----------------------|
| <ul style="list-style-type: none"> • Play back the color-bar signal portion on the alignment tape RR5-1SD PAL. | <p>TP7/CR-35(D-2)</p> <p>$4,433,619 \pm 5\text{Hz}$</p> | <p>RV5/CR-35(A-3)</p> |

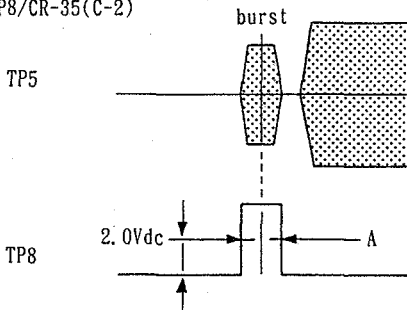
11-16-4. VCO DC Level Adjustment

| machine conditions for adjustment | specification | adjustments |
|---|--|------------------|
| <ul style="list-style-type: none"> • Play back the color-bar signal portion on the alignment tape RR5-1SD PAL. | TP10/CR-35(B-10) DC Level = $7.5 \pm 0.1\text{Vdc}$ | ⌚RV12/CR-35(C-2) |

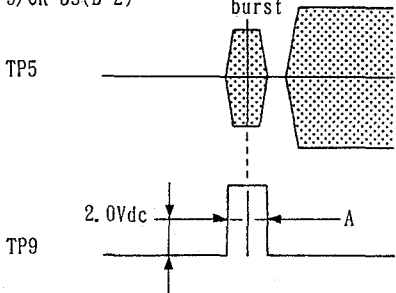
11-16-5. 5.3MHz OSC Level Adjustment

| machine conditions for adjustment | specification | adjustments |
|---|--|------------------|
| <ul style="list-style-type: none"> • Play back the color-bar signal portion on the alignment tape RR5-1SD PAL. | TP4/CR-35(D-2)  $A = 0.5 \pm 0.05\text{Vp-p}$ | ⌚RV13/CR-35(E-2) |

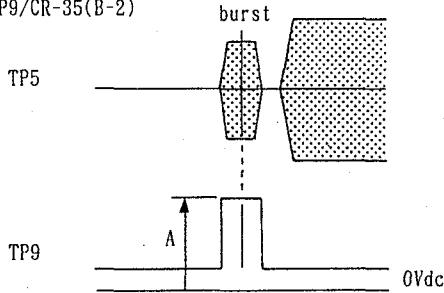
11-16-6. ACC Burst Gate Width/Phase Adjustment

| machine conditions for adjustment | specification | adjustments |
|---|---|---|
| <ul style="list-style-type: none"> • Play back the color-bar signal portion on the alignment tape RR5-1SD PAL. | TP5/CR-35(B-4) TP8/CR-35(C-2)  Width: $A = 2.5 \pm 0.1 \mu\text{sec}$ Phase: Adjust the center of both waves. | Pulse width: ⌚RV9/CR-35(B-2) Phase: ⌚RV10/CR-35(B-1) |

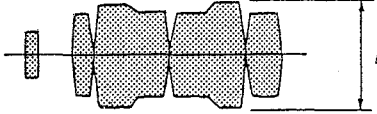
11-16-7. APC Burst Gate Width/Phase Adjustment

| machine conditions for adjustment | specification | adjustments |
|---|--|--|
| <ul style="list-style-type: none"> Play back the color-bar signal portion on the alignment tape RR5-1SD PAL. | <p>TP5/CR-35(B-4) TP9/CR-35(B-2)</p>  <p>Width: $A = 2.5 \pm 0.1 \mu\text{sec}$ Phase: Adjust the center of both waves.</p> | <p>Phase: RV6/CR-35(B-1) Pulse width: RV7/CR-35(B-2)</p> |

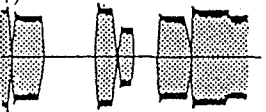
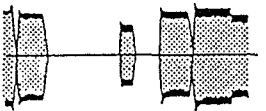
11-16-8. APC Burst Gate Level Adjustment

| machine conditions for adjustment | specification | adjustments |
|---|--|-----------------------|
| <ul style="list-style-type: none"> Play back the color-bar signal portion on the alignment tape RR5-1SD PAL. | <p>TP5/CR-35(B-4) TP9/CR-35(B-2)</p>  <p>$A = 3.5 \pm 0.1 \text{Vdc}$</p> | <p>RV8/CR-35(B-1)</p> |

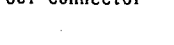
11-16-9. PB ACC Level Adjustment (SP mode)

| machine conditions for adjustment | specification | adjustments |
|---|--|---|
| <ul style="list-style-type: none"> Play back the color-bar signal portion on the alignment tape RR5-1SD PAL. | <p>TP3/CR-35(D-3)</p>  <p>$A = 0.8 \pm 0.1 \text{Vp-p}$</p> | <p>RV3/CR-35(B-3) TRIG: TP8/CR-35(C-2)</p> |

11-16-10. Pilot Burst Mute Pulse Adjustment

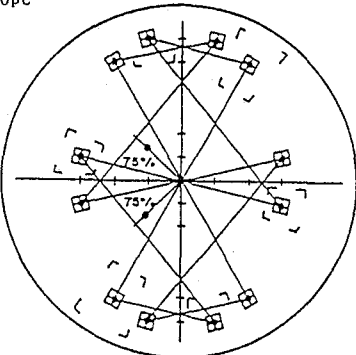
| machine conditions for adjustment | specification | adjustments |
|---|---|--|
| <ul style="list-style-type: none"> • Play back the color-bar signal portion on the alignment tape RR5-1SD PAL. | <p>TP404/VA-76(D-7)</p>  <p>Mute the Pilot Burst</p>  | <p>RV11/CR-35(B-2)</p> <p>TRIG: TP303/VA-76(C-8)</p> |

11-16-11. Converter Balance Adjustment

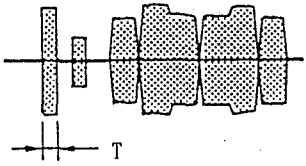
| machine conditions for adjustment | specification | adjustments |
|---|---|------------------------|
| <ul style="list-style-type: none"> • Play back the color-bar signal portion on the alignment tape RR5-1SD PAL. | <p>VIDEO OUT connector</p>  <p>Minimize the A level.</p> | <p>●RV1/CR-35(D-2)</p> |



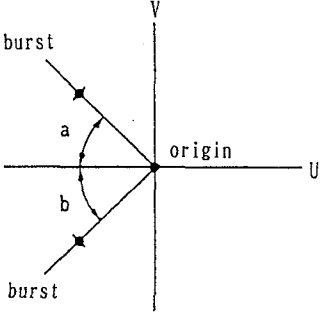
11-16-12. Y/C Mix Adjustment

| machine conditions for adjustment | specification | adjustments |
|---|---|-------------------------|
| <ul style="list-style-type: none"> • Play back the color-bar signal portion on the alignment tape RR5-1SD PAL. | <p>VIDEO OUT connector (terminated by 75Ω)</p> <p>Vectorscope</p>  <p>R should be located in the \oplus.</p> | <p>RV402/VA-76(D-7)</p> |

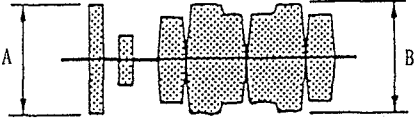
11-16-13. Pilot Burst Adjustment

| machine conditions for adjustment | specification | adjustments |
|---|---|---|
| <ul style="list-style-type: none"> • Insert a KSP-S tape. • VIDEO IN: color-bar signal • EE mode | <p>TP3/CR-35(D-3)</p>  <p>$T: 3.5 \pm 0.1 \mu\text{sec}$</p> | <p>RV4/CR-35(E-4)</p> <p>TRIG: TP8/CR-35(C-2)</p> |

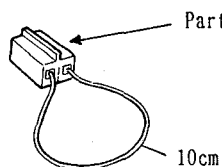
11-16-14. Pilot Burst Phase Adjustment

| machine conditions for adjustment | specification | adjustments |
|---|---|-----------------------|
| <ul style="list-style-type: none"> • Insert a KSP-S tape. • VIDEO IN: color-bar signal • EE mode | <p>TP3/CR-35(D-3)</p>  <p>$a = b = 45^\circ$</p> | <p>LV1/CR-35(E-2)</p> |

11-16-15. Pilot Burst Level Adjustment

| machine conditions for adjustment | specification | adjustments |
|---|--|---|
| <ul style="list-style-type: none"> • Insert a KSP-S tape. • VIDEO IN: color-bar signal • EE mode | <p>TP3/CR-35(D-3)</p>  <p>$A = B$</p> | <p>RV2/CR-35(E-3)</p> <p>TRIG: TP8/CR-35(C-2)</p> |

11-17. REC CURRENT FREQUENCY RESPONSE ADJUSTMENT



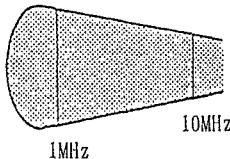
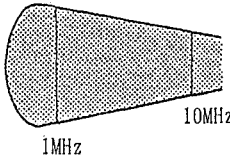
Part No.: 1-509-983-00

HOUSING, IL CONNECTOR 2P

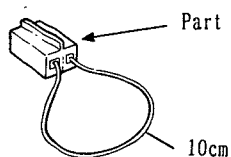
NOTE: Cut the projection
with a cutter.

10cm

<Junction Connector>

| machine conditions for adjustment | specification | adjustments | | | | | | |
|--|--|-------------|-------|------|------|-------|---------|---|
| <ul style="list-style-type: none">• Connect the junction connector to COR201/RP-38A(B-1) and COR202 /RP-38A(B-2). <p>Step 1</p> <ul style="list-style-type: none">• Short between TP207/RP-38A(D-2) and E201/RP-38A(D-1) with a shorting clip.• Connect the RF sweep signal to TP208/RP-38A(D-2).• Connect the current prove to COR201/RP-38A(B-1), and adjust SG so that 1MHz level is 60mAp-p. <p>• REC mode</p> |  <table border="1"><thead><tr><th>Freq.</th><th>Level</th></tr></thead><tbody><tr><td>1MHz</td><td>100%</td></tr><tr><td>10MHz</td><td>80 ± 5%</td></tr></tbody></table> <p>Adjust RV203 so that the 7MHz level meet the specification. Pay attention to change the 1MHz level when adjust RV203.</p> | Freq. | Level | 1MHz | 100% | 10MHz | 80 ± 5% | <p>RV203/RP-38A(C-1)</p> |
| Freq. | Level | | | | | | | |
| 1MHz | 100% | | | | | | | |
| 10MHz | 80 ± 5% | | | | | | | |
| <p>Step 2</p> <ul style="list-style-type: none">• Connect the current prove to COR201/RP-38A(B-1), and adjust SG so that 1MHz level is 60mAp-p.• After the adjustment is completed remove the shorting clips. |  <table border="1"><thead><tr><th>Freq.</th><th>Level</th></tr></thead><tbody><tr><td>1MHz</td><td>100%</td></tr><tr><td>10MHz</td><td>80 ± 5%</td></tr></tbody></table> | Freq. | Level | 1MHz | 100% | 10MHz | 80 ± 5% | <p>RV204/RP-38A(C-2)</p> <p>TRIG: TRIG OUT of SWEEP GEN</p> |
| Freq. | Level | | | | | | | |
| 1MHz | 100% | | | | | | | |
| 10MHz | 80 ± 5% | | | | | | | |

11-18. REC CURRENT LEVEL ADJUSTMENT



Part No.: 1-509-983-00

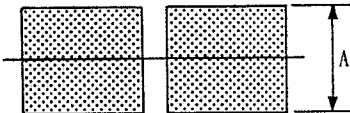
HOUSING, IL CONNECTOR 2P

NOTE: Cut the projection
with a cutter.

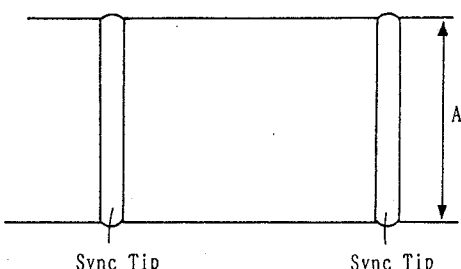
<Junction Connector>

| machine conditions for adjustment | specification | adjustments |
|---|--|--------------------------|
| <ul style="list-style-type: none"> • VIDEO IN: color-bar signal • Short between TP2/CR-35(C-4) and E2/CR-35(D-4) with a shorting clip. | | |
| <p>SP mode adj:</p> <ul style="list-style-type: none"> • Insert a KSP-S tape. • Connect the junction connector to COR201/RP-38A(B-1), and then connect the current probe to it. • REC mode | <p>$A = 55 \pm 5mA_{p-p}$</p> | <p>RV201/RP-38A(D-2)</p> |
| <p>High-band mode adj:</p> <ul style="list-style-type: none"> • Insert a KCS tape. • Connect the junction connector to COR201/RP-38A(B-1) and then connect the current probe to it. • REC mode | <p>$A = 67 \pm 8mA_{p-p}$</p> | <p>RV4/VA-76(D-3)</p> |

11-19. CHROMA REC CURRENT LEVEL ADJUSTMENT

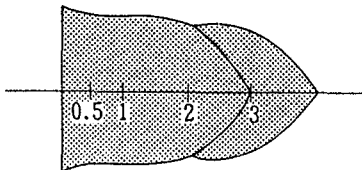
| machine conditions for adjustment | specification | adjustments |
|--|---|--------------------------|
| <ul style="list-style-type: none"> • VIDEO IN: color-bar signal • Insert a KSP-S tape. • Short between E201/RP-38A(D-1) and TP207/RP-38A(D-2) with a shorting clip. • Connect the junction connector of COR201/RP-38A(B-1) and then connect the current probe to it. • REC mode | <p>COR201/RP-38A(B-1)</p>  <p>$A = 15 \pm 5 \text{mA}_{p-p}$</p> | <p>RV202/RP-38A(D-1)</p> |
| <ul style="list-style-type: none"> • Disconnect the shorting clip. • Play back the self-recorded portion. | <p>TP1/CR-35(C-4)</p> <p>Chroma level = $220 \pm 20 \text{mV}_{p-p}$</p> | |

11-20. OVERALL Y RF LEVEL ADJUSTMENT

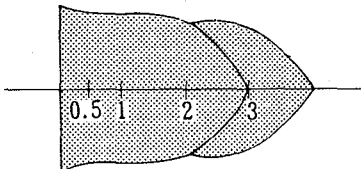
| machine conditions for adjustment | specification | adjustments |
|--|--|---|
| <ul style="list-style-type: none"> • VIDEO IN: color-bar signal • Insert a KSP-S tape. • REC mode • Play back the self-recorded portion. | <p>TP11/VA-76(G-6)</p>  <p>$A = 300 \pm 20 \text{mV}_{p-p}$</p> | <p>RV30/VA-76(H-5)</p> <p>TRIG: TP18/VA-76(G-2)</p> |

11-21. OVERALL Y FREQUENCY RESPONSE ADJUSTMENT

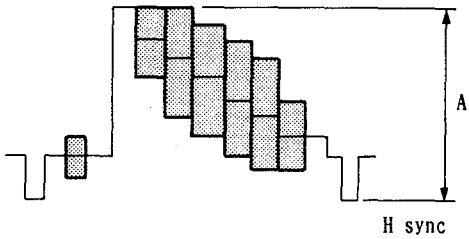
11-21-1. Overall Y Frequency Response Adjustment (SP mode)

| machine conditions for adjustment | specification | adjustments | | | | | | | | | | |
|--|--|-------------|-------|--------|-----------|------|----------|------|----------|------|----------|------------------------|
| <ul style="list-style-type: none">• Insert a KSP-S tape.• VIDEO IN: gated sweep with burst signal• REC/PB mode | <p>VIDEO OUT connector (terminated by 75Ω)</p>  <table><tr><th>Freq.</th><th>Level</th></tr><tr><td>0.5MHz</td><td>100%(REF)</td></tr><tr><td>1MHz</td><td>100 ± 5%</td></tr><tr><td>2MHz</td><td>100 ± 5%</td></tr><tr><td>3MHz</td><td>90 ± 10%</td></tr></table> <p>Read 2 to 3MHz level at moire peak.</p> | Freq. | Level | 0.5MHz | 100%(REF) | 1MHz | 100 ± 5% | 2MHz | 100 ± 5% | 3MHz | 90 ± 10% | <p>●CV1/VA-76(B-6)</p> |
| Freq. | Level | | | | | | | | | | | |
| 0.5MHz | 100%(REF) | | | | | | | | | | | |
| 1MHz | 100 ± 5% | | | | | | | | | | | |
| 2MHz | 100 ± 5% | | | | | | | | | | | |
| 3MHz | 90 ± 10% | | | | | | | | | | | |

11-21-2. Overall Y Frequency Response Check (Conventional mode)

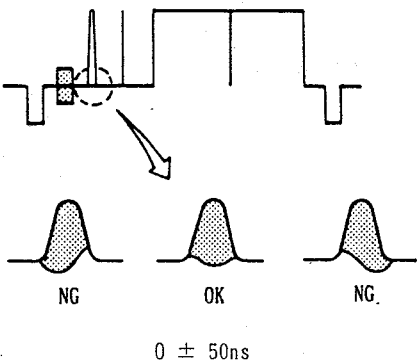
| machine conditions for adjustment | specification | adjustments | | | | | | | | | | |
|--|--|-------------|-------|--------|-----------|------|----------|------|-----------|------|-----------|--|
| <ul style="list-style-type: none">• Insert a KCS tape.• VIDEO IN: gated sweep with burst signal• REC/PB mode | <p>VIDEO OUT connector (terminated by 75Ω)</p>  <table><tr><th>Freq.</th><th>Level</th></tr><tr><td>0.5MHz</td><td>100%(REF)</td></tr><tr><td>1MHz</td><td>105 ± 6%</td></tr><tr><td>2MHz</td><td>110 ± 12%</td></tr><tr><td>3MHz</td><td>100 ± 10%</td></tr></table> <p>Read 2 to 3MHz level at moire peak.</p> | Freq. | Level | 0.5MHz | 100%(REF) | 1MHz | 105 ± 6% | 2MHz | 110 ± 12% | 3MHz | 100 ± 10% | |
| Freq. | Level | | | | | | | | | | | |
| 0.5MHz | 100%(REF) | | | | | | | | | | | |
| 1MHz | 105 ± 6% | | | | | | | | | | | |
| 2MHz | 110 ± 12% | | | | | | | | | | | |
| 3MHz | 100 ± 10% | | | | | | | | | | | |

11-22. CONF1 MODE Y LEVEL ADJUSTMENT

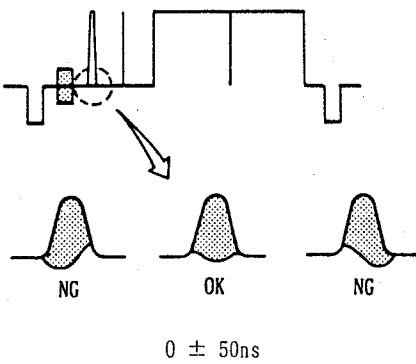
| machine conditions for adjustment | specification | adjustments |
|--|---|-------------------------|
| <ul style="list-style-type: none"> • VIDEO IN: color bar signal • Insert a KSP-S tape. • REC mode | <p>TP502/VA-76(D-7)</p>  <p>$A = 2.0 \pm 0.1V_{p-p}$</p> | <p>RV501/VA-76(B-3)</p> |

11-23. PB Y/C DELAY ADJUSTMENT

11-23-1. PB Y/C Delay Adjustment (SP mode)

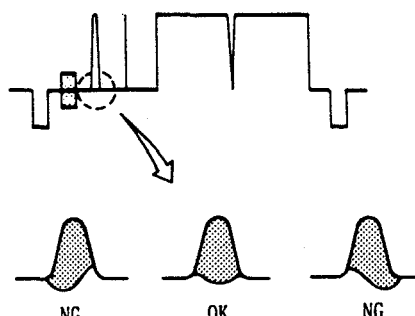
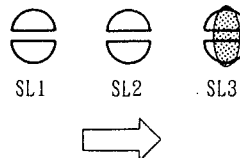
| machine conditions for adjustment | specification | adjustments |
|---|---|------------------------|
| <ul style="list-style-type: none"> • Play back the pulse & bar (color) signal portion on the alignment tape RR5-1SD PAL. | <p>VIDEO OUT connector (terminated by 75Ω)</p>  <p>0 ± 50ns</p> | <p>RV21/VA-76(F-2)</p> |

11-23-2. PB Y/C Delay Adjustment (Conventional mode)

| machine conditions for adjustment | specification | adjustments |
|---|---|------------------------|
| <ul style="list-style-type: none"> • Play back the mod 20T pulse signal portion on the alignment tape RR5-2SB PAL. | <p>VIDEO OUT connector (terminated by 75Ω)</p>  <p>0 ± 50ns</p> | <p>RV22/VA-76(F-3)</p> |

11-24. REC Y/C DELAY ADJUSTMENT

11-24-1. REC Y/C Delay Adjustment (SP mode)

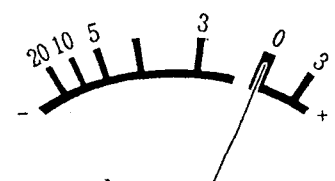
| machine conditions for adjustment | specification | adjustments |
|--|---|---|
| <ul style="list-style-type: none"> • VIDEO IN: mod IOT signal • Insert a KSP-S tape. • Play back the self-recorded portion. | <p>VIDEO OUT connector (terminated by 75Ω)</p>  <p>0. \pm 50ns</p> | <p>● SL1 through SL3/VA-76</p>  <p>TRIG: INT</p> |

When not to meet the specification:

Unsolder SL1 through SL3 on the VA-76 board with a soldering iron.

Short moving one by one in the direction of the arrow, and check to meet the specification.

11-25. VIDEO METER ADJUSTMENT

| machine conditions for adjustment | specification | adjustments |
|---|--|-------------------------|
| <ul style="list-style-type: none"> • METER SELECT sw: VIDEO • VIDEO IN: color-bar signal • Insert a KSP-S tape. • EE mode | <p>VIDEO meter</p>  <p>Adjust so that the pointer is on the leftest edge of "0".</p> | <p>● RV5/VA-76(F-6)</p> |

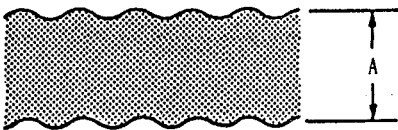
SECTION 12

TIME CODE SYSTEM ALIGNMENT

[Equipment Required]

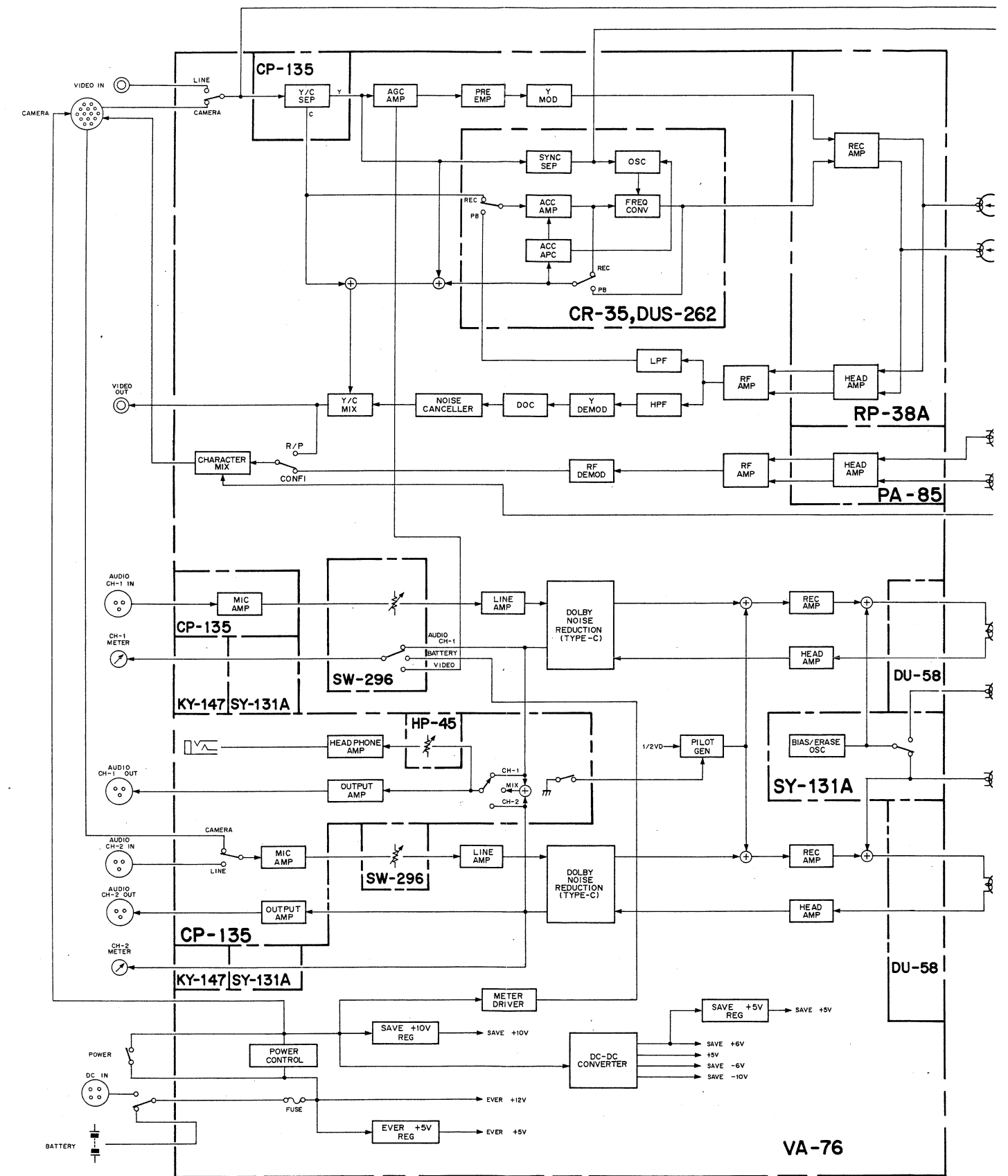
- oscilloscope
- square wave generator (1.2kHz, 1Vp-p)
- audio noise meter (rms range, DIN/AUDIO or JIS A mode)

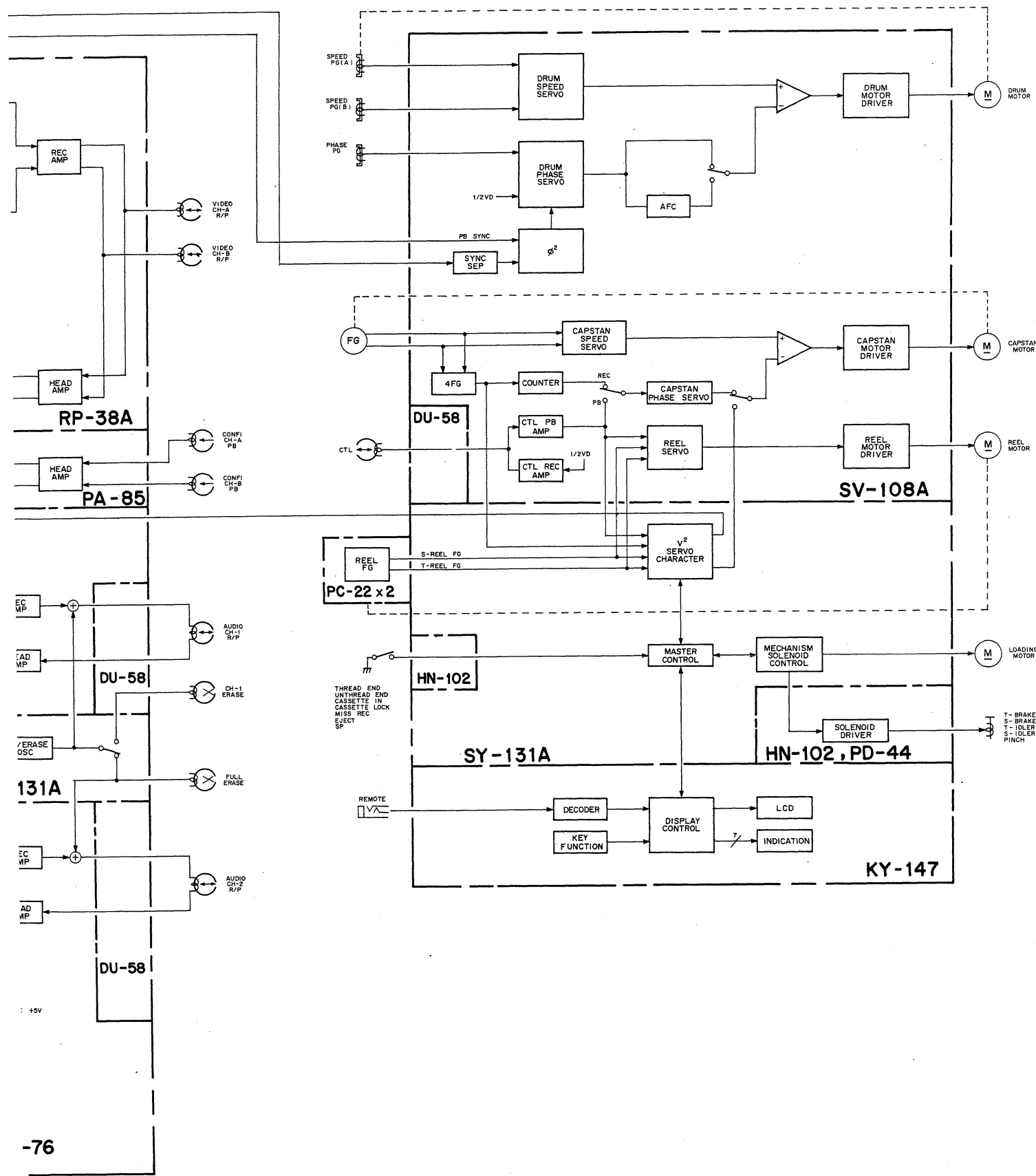
12-1. TIME CODE REC CURRENT ADJUSTMENT

| machine conditions for adjustment | specification | adjustment |
|--|--|---------------------------|
| <p>Step 1</p> <ul style="list-style-type: none"> • Play back the pseudo-color-bar (time code) signal portion on the alignment tape, RR5-ISD PAL. | <p>pin 6 of CN11 (TP203)/SY-131A(F-4)</p>  <p>Check the A level.</p> | |
| <p>Step 2</p> <ul style="list-style-type: none"> • Insert a BKU-706 into the VO-8800P. • TC IN connector/BKU-706: 1.2kHz, 1Vp-p square wave signal • Insert a KSP-S tape. • Put the unit into the REC and PB modes repeatedly, and adjust. | <p>pin 6 of CN11 (TP203)/SY-131A(F-4)</p> <p>A level in step 1 $\pm 1\%$ mV</p> | <p>RV204/SY-131A(D-4)</p> |

SECTION 13
BLOCK DIAGRAM

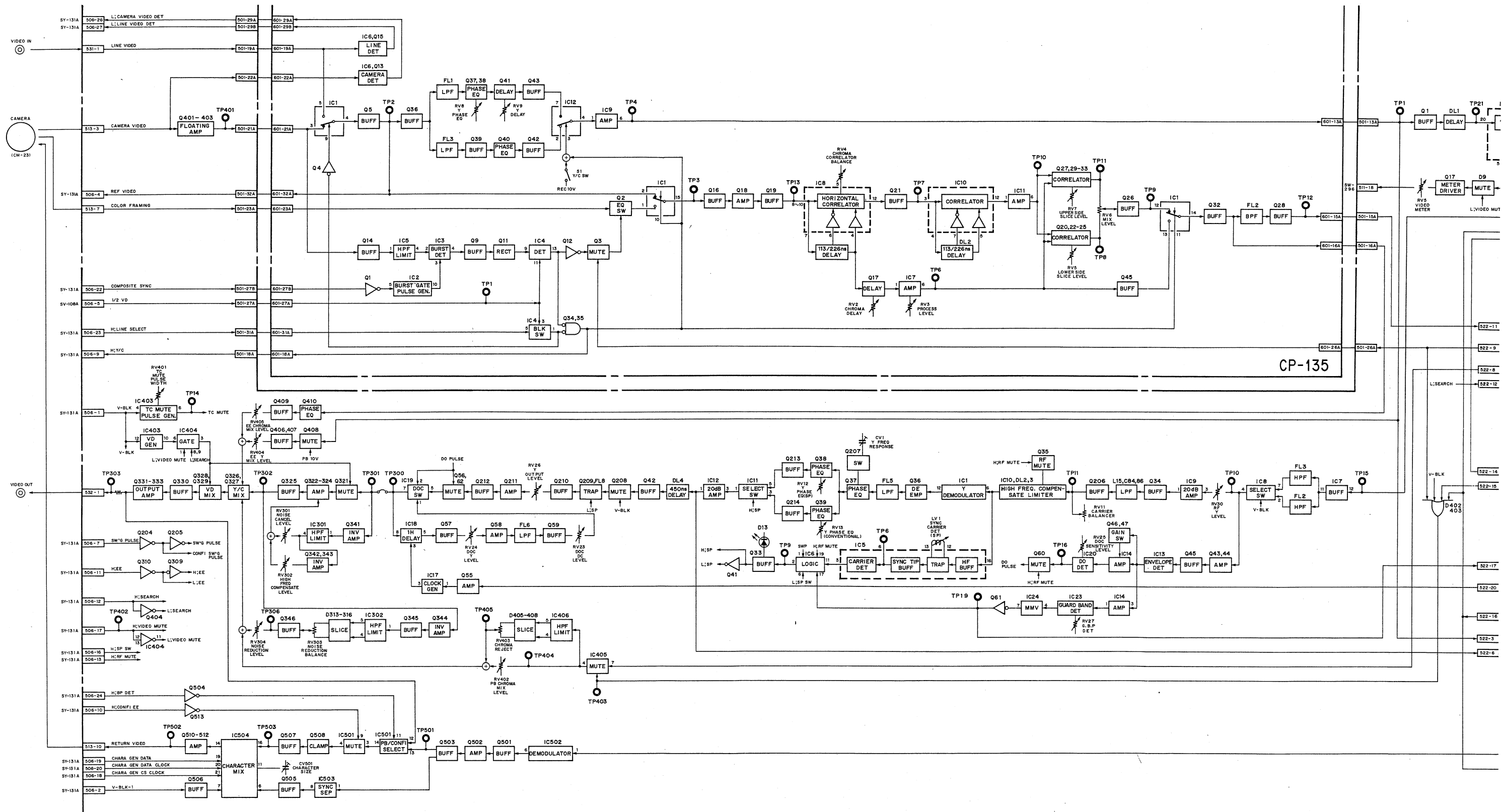
OVERALL

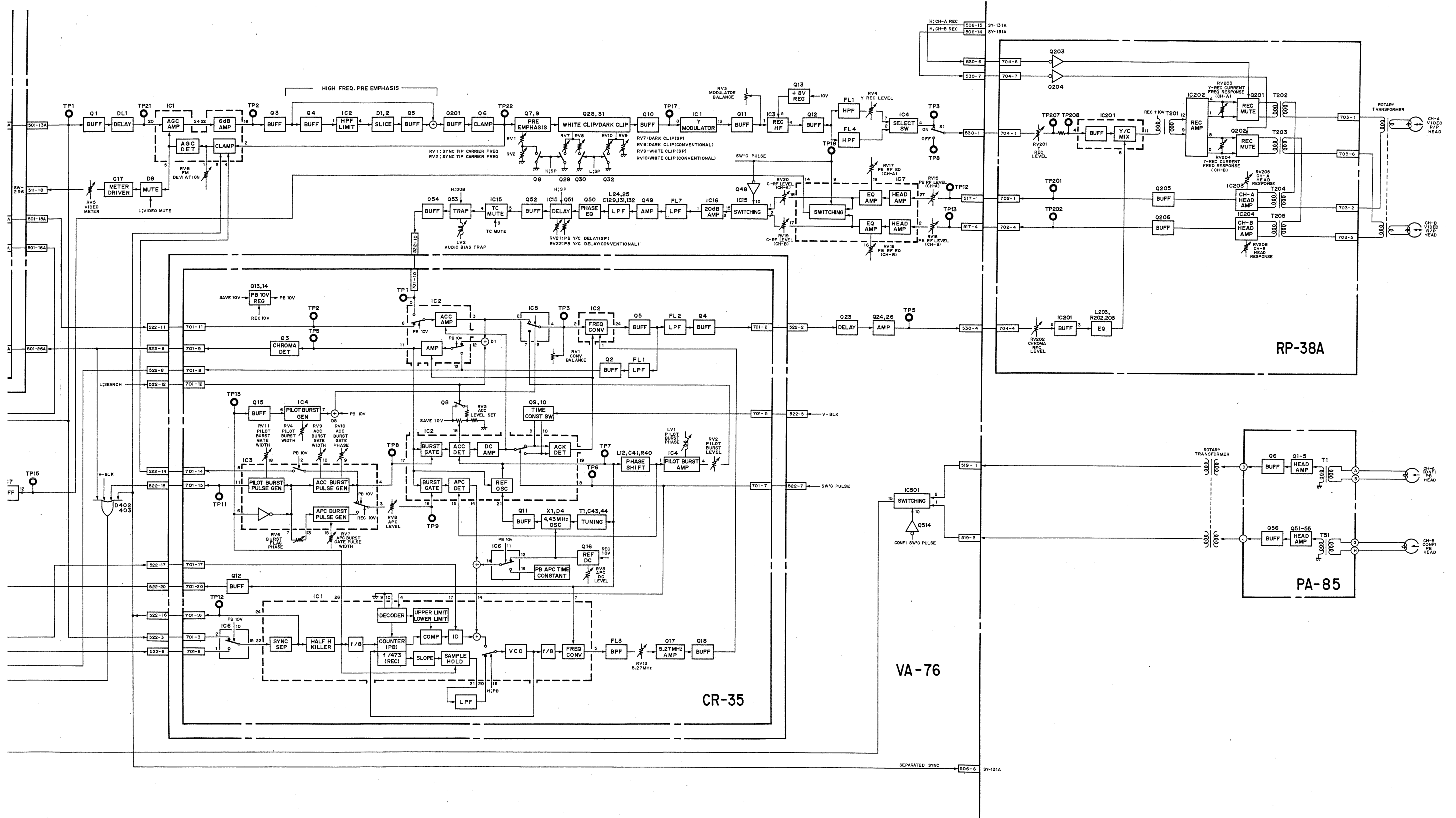




VIDEO SYSTEM

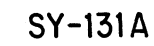
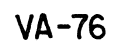
VIDEO VIDEO





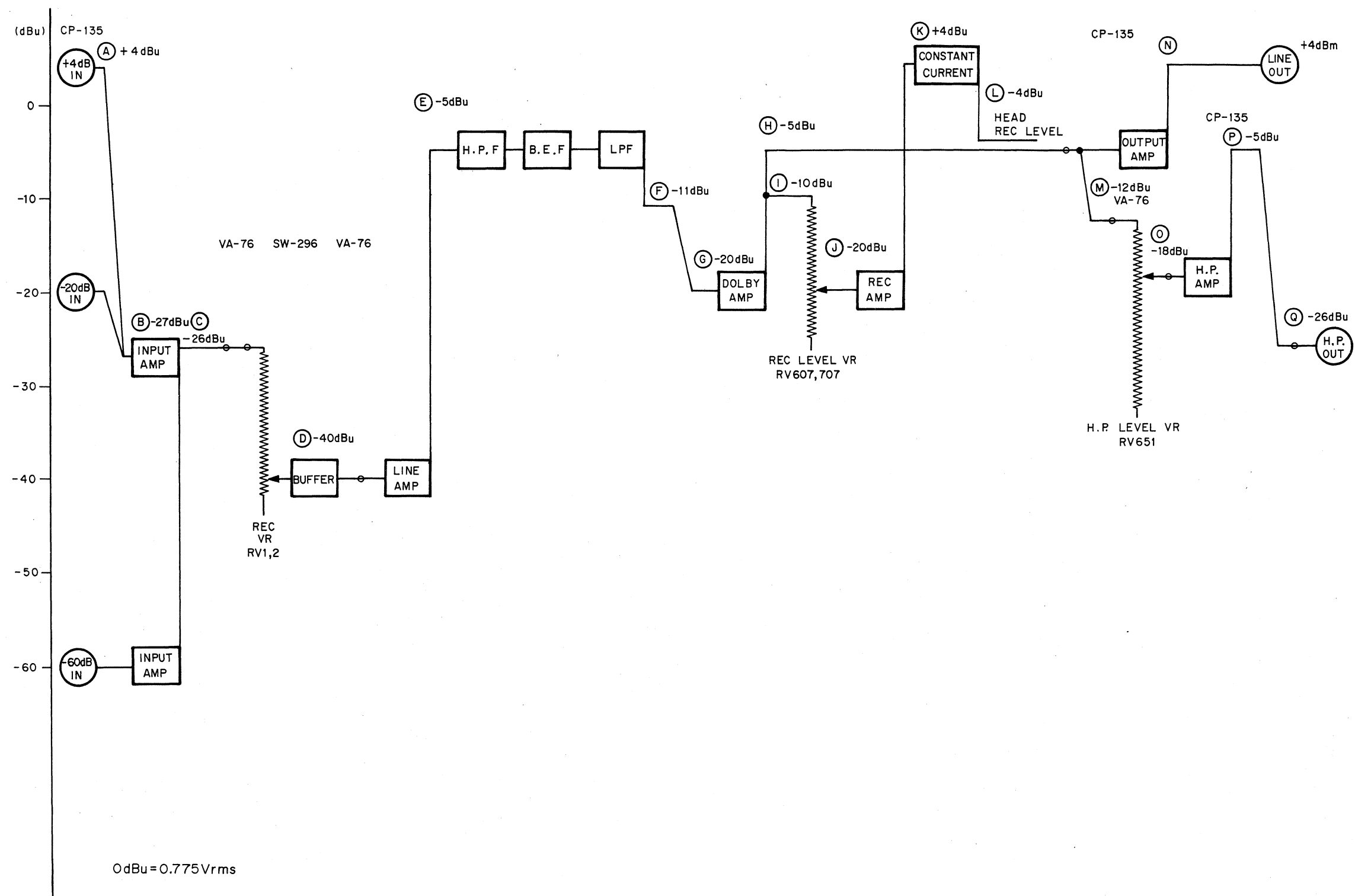
AUDIO AUDIO



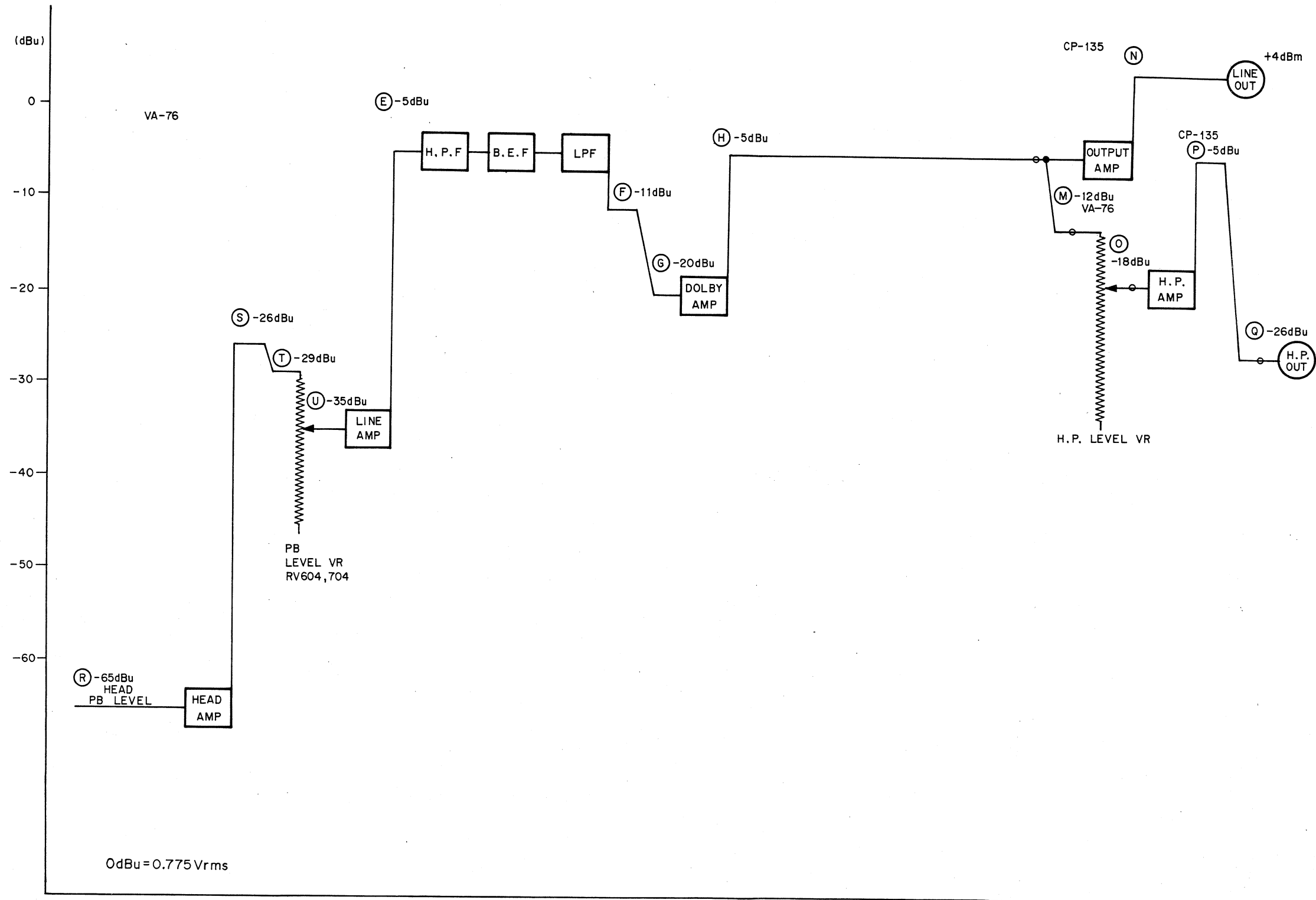


AUDIO SYSTEM LEVEL DIAGRAM

Audio Level Diagram EE SYSTEM

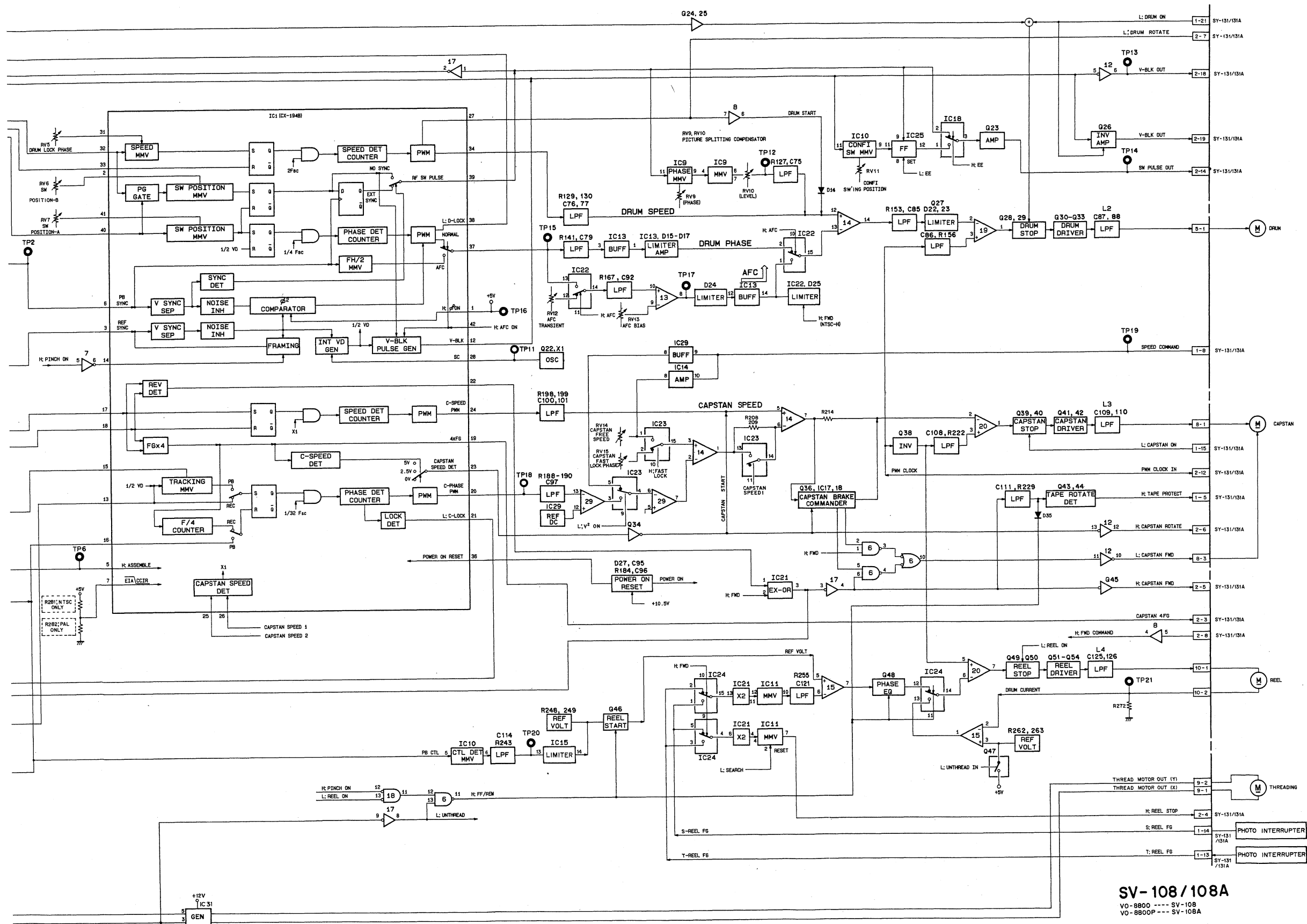


Audio Level Diagram PB SYSTEM



SERVO SERVO





SV-108/108A

VO-8800 ---- SV-108
VO-8800P ---- SV-108A

SECTION 14

SEMICONDUCTOR ELECTRODES

ICs, transistors and diodes whoses functions are equivalent are described here. Therefore, incompatible device names may be described together. For parts replacement, refer to the Spare Parts section in this manual.

| IC | PAGE | IC | PAGE | IC | PAGE |
|-------------|------|----------------|-------|--------------|-------|
| AN607P | 14-3 | CX859 | 14-7 | RC78L??A | 14-15 |
| AN608P | 14-3 | CX872 | 14-7 | S-812?? | 14-15 |
| BA7131F | 14-3 | CXA1020P | 14-7 | SN74ALS05AN | 14-15 |
| BX1140 | 14-3 | CXA1098Q | 14-8 | SN74HC03NS | 14-14 |
| BX1257 | 14-3 | CXA1261M | 14-8 | SN74HC4020NS | 14-15 |
| BX1262 | 14-3 | CXL5003P | 14-8 | TA7060AP | 14-15 |
| BX1262L | 14-3 | HA12411 | 14-8 | TA7060P | 14-16 |
| BX1264 | 14-3 | MB3763PS | 14-9 | TA7357AP | 14-16 |
| BX1264L | 14-3 | MB88201-173N | 14-9 | TA7374P | 14-16 |
| BX1265 | 14-3 | MB88323PF | 14-9 | TC4001BF | 14-4 |
| BX1265L | 14-3 | MB88505H-1019M | 14-10 | TC4011BF | 14-4 |
| BX373 | 14-3 | MB88505P | 14-10 | TC4019BF | 14-4 |
| BX373AL | 14-3 | MB88505PF | 14-10 | TC4030BFHB | 14-4 |
| BX374 | 14-3 | MB88544 | 14-11 | TC4049BP | 14-4 |
| BX389 | 14-4 | MB88551-H | 14-13 | TC4050BF | 14-4 |
| BX389L | 14-4 | MC14528BCP | 14-14 | TC4053BFHB | 14-4 |
| BX3915 | 14-4 | MC14538BCP | 14-14 | TC4053BPFB | 14-4 |
| CD4001AE/BE | 14-4 | MC74HC03N | 14-14 | TC4066BFHB | 14-5 |
| CD4011AE/BE | 14-4 | NJM2041D | 14-14 | TC4069UBF | 14-5 |
| CD4019BE | 14-4 | NJM4560D | 14-14 | TC4081BF | 14-5 |
| CD4030AE/BE | 14-4 | NJM4562S-D | 14-14 | TC4528BFHB | 14-14 |
| CD4049AE | 14-4 | NJM5532M | 14-14 | TC4538BF | 14-14 |
| CD4050AE/BE | 14-4 | NJM7805A | 14-14 | TC4S71F | 14-16 |
| CD4053BE | 14-4 | RC2041MD | 14-14 | TC504013BF | 14-16 |
| CD4066AE/BE | 14-5 | RC2043MD | 14-15 | TL082CP | 14-16 |
| CD4069UBE | 14-5 | RC4558 | 14-15 | TL082CPS | 14-16 |
| CD4081BE | 14-5 | RC4558M | 14-15 | μ A78L??AWV | 14-15 |
| CX187 | 14-5 | RC4560M | 14-15 | μ PC1037HA | 14-16 |
| CX194B | 14-5 | RC5532M | 14-15 | μ PC324G2 | 14-16 |
| CX20060 | 14-5 | | | | |
| CX20061 | 14-5 | | | | |
| CX22013 | 14-6 | | | | |

The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

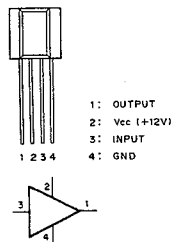


| IC | PAGE |
|----------------------|-------|
| μ PC358G2 | 14-16 |
| μ PC393G2 | 14-16 |
| μ PC4558G2 | 14-15 |

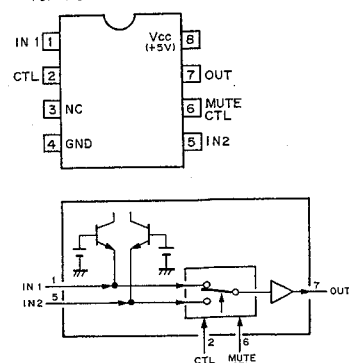
| TRANSISTOR | PAGE |
|--------------------|-------|
| 2SA1162G | 14-17 |
| 2SA1175F | 14-17 |
| 2SA1226 | 14-17 |
| 2SA812 | 14-17 |
| 2SA844 | 14-17 |
| 2SB553 | 14-17 |
| 2SB733 | 14-17 |
| 2SB822 | 14-17 |
| 2SC1623 | 14-17 |
| 2SC2562 | 14-17 |
| 2SC2712 | 14-17 |
| 2SC2715 | 14-17 |
| 2SC2757 | 14-17 |
| 2SC2785K | 14-17 |
| 2SC2878 | 14-17 |
| 2SC3072 | 14-17 |
| 2SC3326 | 14-17 |
| 2SC403SP | 14-17 |
| 2SD1030 | 14-17 |
| 2SD1055 | 14-17 |
| 2SD1160 | 14-17 |
| 2SD1685 | 14-17 |
| 2SD788 | 14-17 |
| 2SD789 | 14-17 |
| 2SK94 | 14-17 |
| DTA114TU | 14-17 |
| DTA144EK | 14-17 |
| DTA144ES | 14-17 |
| DTC114TU | 14-17 |
| DTC114YK | 14-17 |
| DTC144EK | 14-17 |
| DTC144ES | 14-17 |

| DIODET | PAGE |
|---------------------|-------|
| 10E-2 | 14-18 |
| 1S1555S | 14-18 |
| 1S2835 | 14-18 |
| 1S2837 | 14-18 |
| 1SS119 | 14-18 |
| 1SS123 | 14-18 |
| 1SS97-1 | 14-18 |
| 1SS99 | 14-18 |
| BR5505S | 14-18 |
| EBR3402S | 14-18 |
| ERA81-004 | 14-18 |
| ERB81-004 | 14-18 |
| FC54M | 14-18 |
| HZS??L | 14-18 |
| HZS11C2L | 14-18 |
| PH302B | 14-18 |
| RD??EB? | 14-18 |
| RD??EL? | 14-18 |
| RD??ESB | 14-18 |
| RD??ESB? | 14-18 |
| RD??FB? | 14-18 |
| RD??MB? | 14-18 |
| RD??MB? | 14-18 |
| RP5551K | 14-18 |
| SLH-34YT3 | 14-18 |
| SLR-932A | 14-18 |
| TLP801A | 14-18 |
| TLR124 | 14-18 |

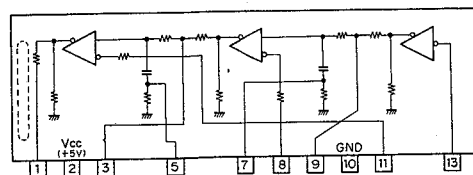
AN607P (MATSUSHITA)
AN608P (MATSUSHITA)
WIDE BAND AMPLIFIER
— PRINTED SIDE VIEW —



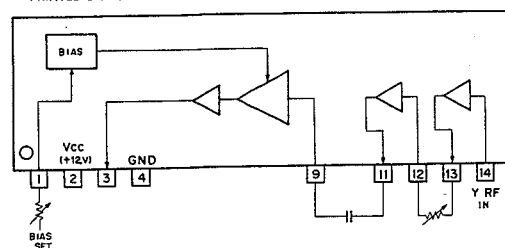
BA7131F (ROHM) FLAT PACKAGE
VIDEO SIGNAL SWITCHER
— TOP VIEW —



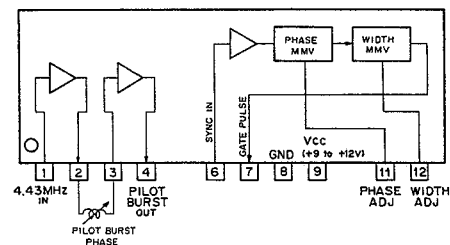
BX1140 (SONY)
HF AMP
— REAR VIEW —



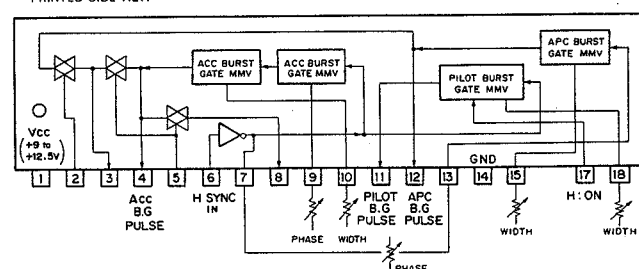
BX1257 (SONY)
Y-RF SIDE BAND EQUALIZER
— PRINTED SIDE VIEW —



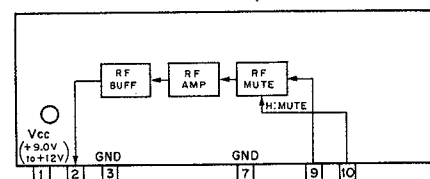
BX1262 (SONY)
BX1262L (ROHM)
PILOT BURST INSERTER
— PRINTED SIDE VIEW —



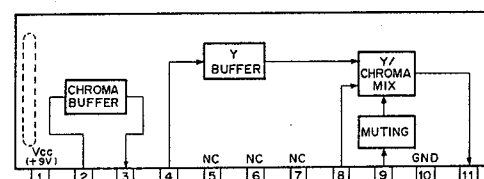
BX1264 (SONY)
BX1264L (SONY)
ACC/APC BURST GATE PULSE GENERATOR
— PRINTED SIDE VIEW —



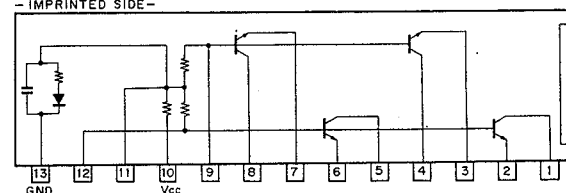
BX1266 (SONY)
BX1265L (SONY)
VIDEO HEAD AMPLIFIER/MUTING
— PRINTED SIDE VIEW —



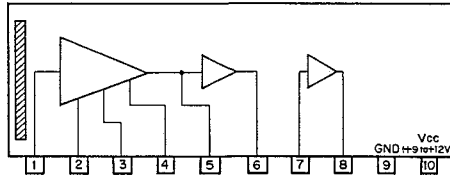
BX373 (SONY)
BX373AL (SONY)
MIX AMP
— REAR VIEW —



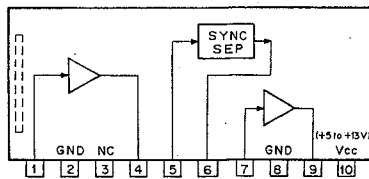
BX374 (SONY)
REC AMP
— IMPRINTED SIDE —



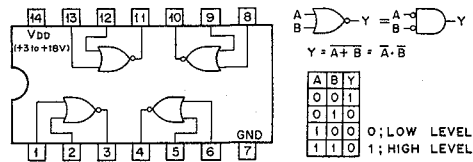
BX389 (SONY)
BX389L (ROHM)
VIDEO AMPLIFIER
— PRINTED SIDE —



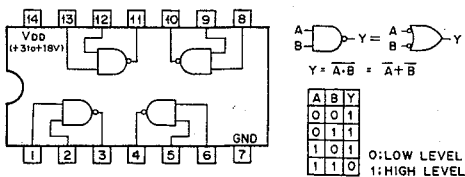
BX3915 (SONY)
SYNC SEPARATOR
— PRINTED SIDE —



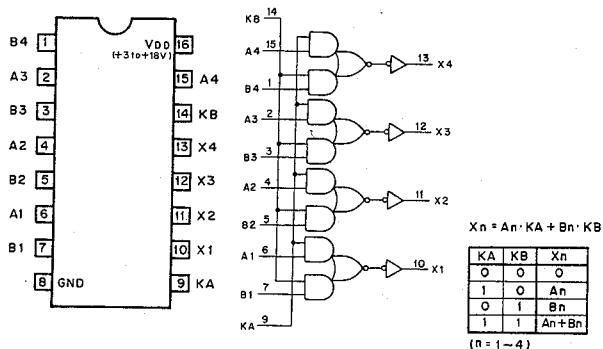
CD4001AE/BE (RCA)
TC4001BF (TOSHIBA) FLAT PACKAGE
C-MOS 2-INPUT NOR GATE
— TOP VIEW —



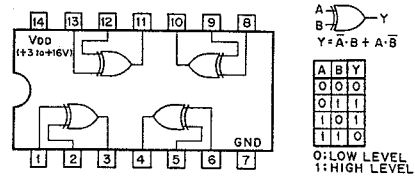
CD4011AE/BE (RCA)
TC4011BF (TOSHIBA) FLAT PACKAGE
C-MOS 2-INPUT NAND GATE
— TOP VIEW —



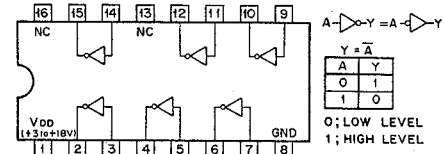
CD4019BE (RCA)
TC4019BF (TOSHIBA) FLAT PACKAGE
C-MOS AND-OR SELECT GATE
— TOP VIEW —



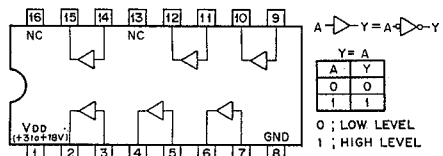
CD4030AE/BE (RCA)
TC4030BFHB (TOSHIBA) FLAT PACKAGE
C-MOS EXCLUSIVE OR GATE
— TOP VIEW —



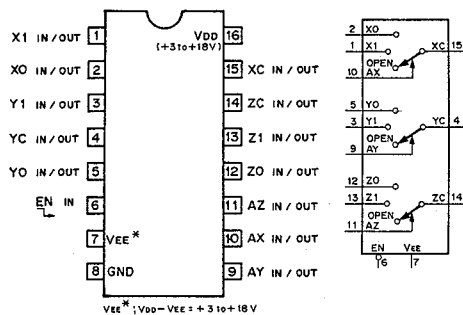
CD4049AE (RCA)
TC4049BP (TOSHIBA)
C-MOS INVERTING TYPE BUFFER/CONVERTER
— TOP VIEW —



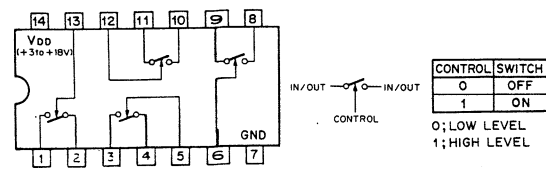
CD4050AE/BE (RCA)
TC4050BF (TOSHIBA) FLAT PACKAGE
C-MOS NON-INVERTING TYPE BUFFER/CONVERTER
— TOP VIEW —



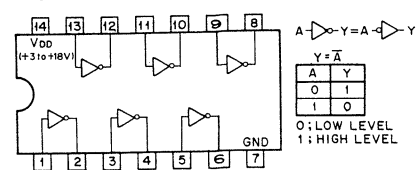
CD4053BE (RCA)
TC4053BFHB (TOSHIBA) FLAT PACKAGE
TC4053BPHB (TOSHIBA)
C-MOS 2-CHANNEL MULTIPLEXER/DEMULTIPLEXER
— TOP VIEW —



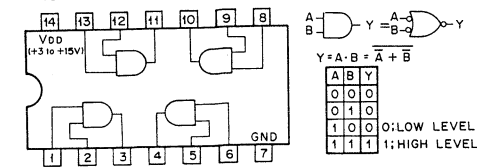
CD4066AE/BE (RCA)
TC4066BFHB (TOSHIBA) FLAT PACKAGE
C-MOS BILATERAL ANALOG SWITCH
— TOP VIEW —



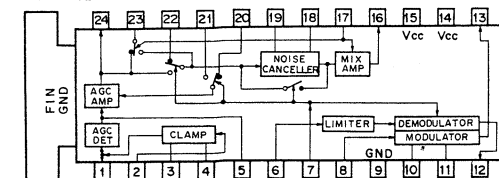
CD4069UBE (RCA)
TC4069UBF (TOSHIBA) FLAT PACKAGE
C-MOS INVERTER
— TOP VIEW —



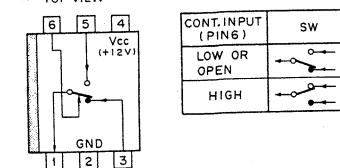
CD4081BE (RCA)
TC4081BF (TOSHIBA) FLAT PACKAGE
C-MOS 2-INPUT AND GATE
— TOP VIEW —



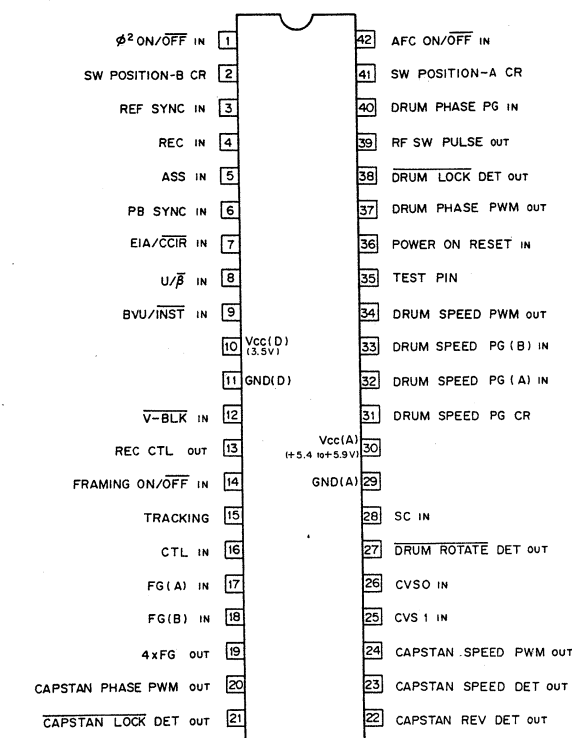
CX187 (SONY)
LUMINANCE SIGNAL PROCESSOR
— TOP VIEW —



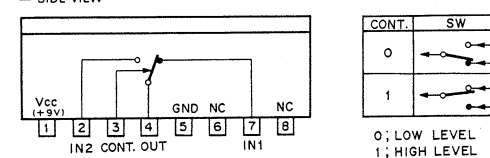
CX20060 (SONY)
ANALOG SWITCH
— TOP VIEW —



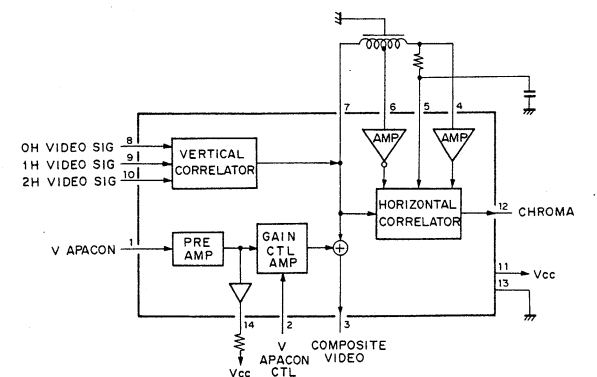
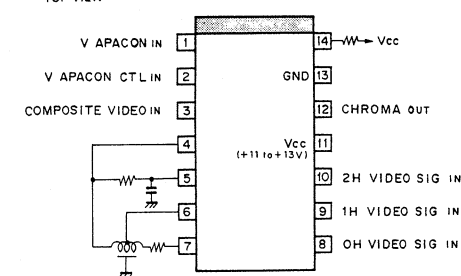
CX194B (SONY)
DRUM/CAPSTAN PWM SERVO
— TOP VIEW —



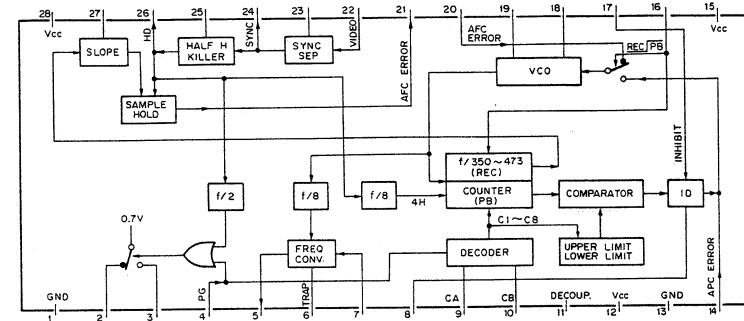
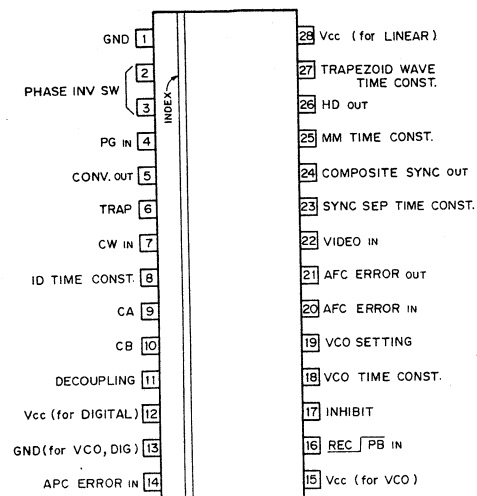
CX20061 (SONY)
ANALOG SWITCH
— SIDE VIEW —



CX22013 (SONY)
DYNAMIC COMB FILTER
— TOP VIEW —



CX859 (SONY)
- TOP VIEW -



DECODER TRUTH TABLE

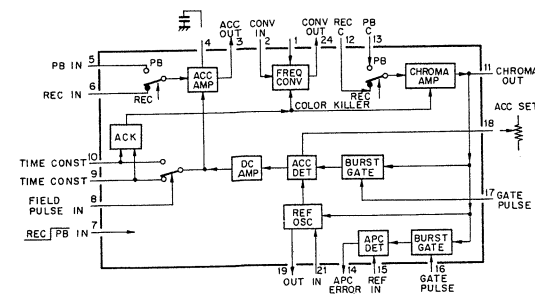
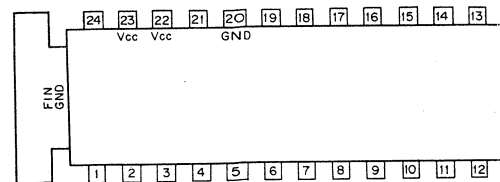
| CB | CA | LOW | OPEN | HIGH |
|------|----|-----|------|------|
| LOW | C1 | C7 | — | — |
| OPEN | C4 | C5 | C6 | — |
| HIGH | — | *C2 | C3 | C8 |

* PG: L --- C2
PG: H --- C3

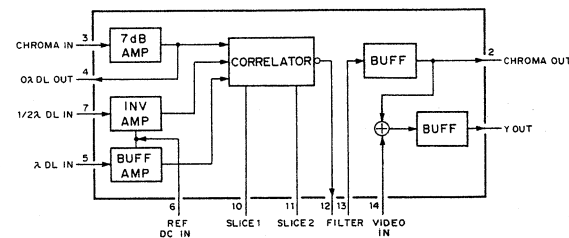
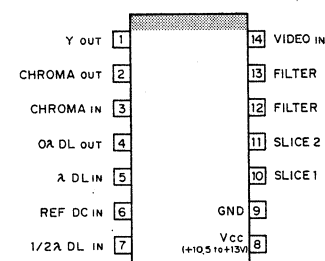
AFC/APC PRESET DATA

| | AFC COUNT DOWN | APC ID COUNT UPPER LIM. | APC ID COUNT LOWER LIM. |
|----|----------------|-------------------------|-------------------------|
| C1 | f/473 | 105 | 95 |
| C2 | f/351 | 129 | 119 |
| C3 | f/353 | 137 | 127 |
| C4 | f/351 | 118 | 104 |
| C5 | f/351 | 131 | 117 |
| C6 | f/351 | 144 | 130 |
| C7 | f/350 | 136 | 104 |
| C8 | — | 125 | 115 |

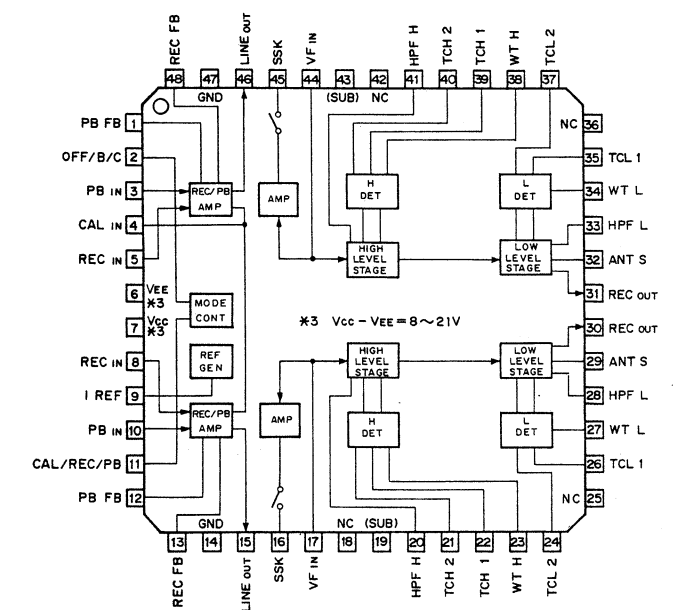
CX872 (SONY)
- TOP VIEW -



CXA1020P (SONY)
CHROMA CROSS-COLOR NOISE REDUCER/EDGE COMPENSATOR
- TOP VIEW -



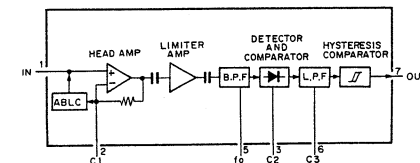
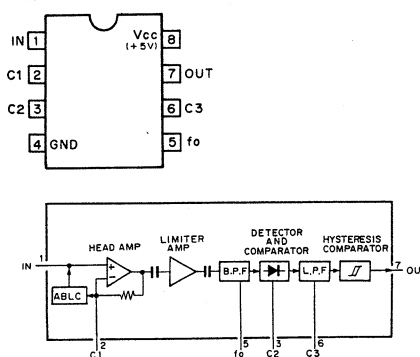
CXA1098Q (SONY) FLAT PACKAGE
2 CHANNELS DOLBY TYPE-B/C NOISE REDUCTION
- TOP VIEW -



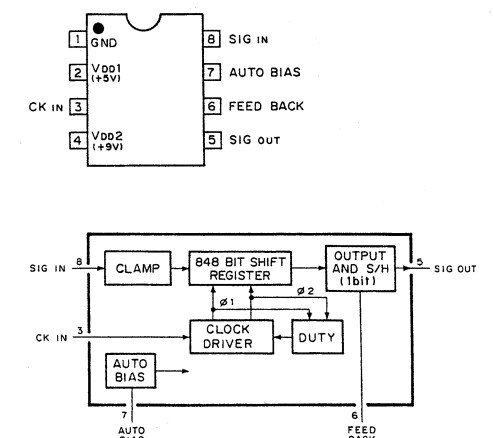
ANT S ; ANTI-SATURATION
CAL IN ; CALIBRATION INPUT
CAL/REC/PB ; CALIBRATION/REC/PB SELECT
HPF H ; HPF FOR HIGH-LEVEL-STAGE
HPF L ; HPF FOR LOW-LEVEL-STAGE
I REF ; REFERENCE CURRENT SOURCE
OFF/B/C ; DOLBY OFF/DOLBY
PB FB ; PB FEEDBACK INPUT
REC FB ; REC FEEDBACK INPUT
SSK ; SPECTRAL SKEWING SWITCH

TCH 1 ; TIME CONSTANT-1 FOR HLS*1
TCH 2 ; TIME CONSTANT-2 FOR HLS
TCL 1 ; TIME CONSTANT-1 FOR LLS*2
TCL 2 ; TIME CONSTANT-2 FOR LLS
VF IN ; ENCODER INPUT
WT H ; WEIGHTING FOR HLS
WT L ; WEIGHTING FOR LLS
*1: HIGH-LEVEL-STAGE
*2: LOW-LEVEL-STAGE

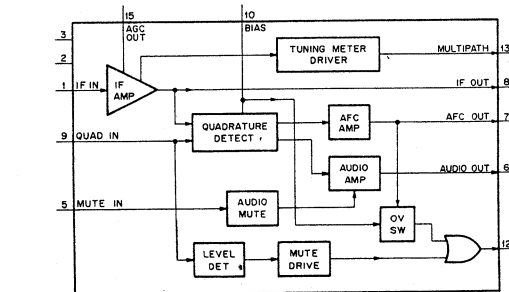
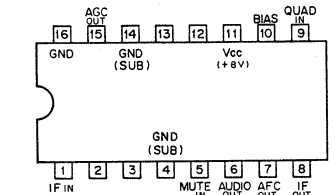
CXA1261M (SONY) FLAT PACKAGE
INFRARED REMOTE CONTROL RECEIVER
- TOP VIEW -



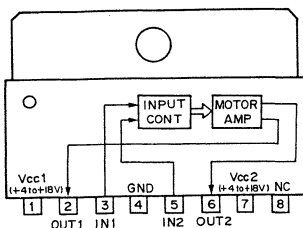
CXL5003P (SONY)
C-MOS CCD FOR PAL 1H DELAY LINE
- TOP VIEW -



HA12411 (HITACHI)
FM IF AMPLIFIER
QUADRATURE DETECT
AUDIO AMPLIFIER
MUTING
AFC
AGC
TUNING METER DRIVER



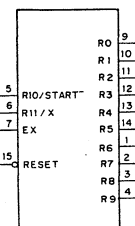
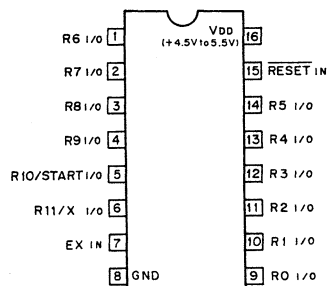
MB3763PS (FUJITSU)
BI-DIRECTIONAL MOTOR DRIVER
- SIDE VIEW -



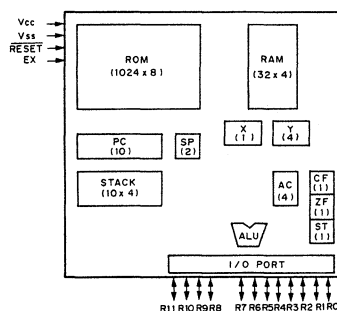
| INPUT | OUTPUT | OUTPUT | OUTPUT |
|-------|--------|--------|------------------|
| IN1 | IN2 | OUT1 | OUT2 |
| 1 | 1 | L | L |
| 1 | 0 | L | H |
| 0 | 1 | H | L |
| 0 | 0 | - | - |
| | | | MODE |
| | | | SHORT (BRAKE) |
| | | | ROTATION |
| | | | REVERSE ROTATION |
| | | | OPEN (HI-Z) |

*1: More than 2.4V
0: Less than 0.4V
H: HIGH LEVEL
L: LOW LEVEL
HI-Z: HI-IMPEDANCE
-: DON'T CARE

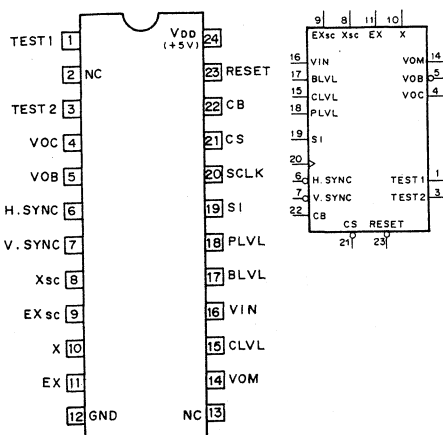
MB88201-173N (FUJITSU)
C-MOS 4 BIT MICROCOMPUTER
- TOP VIEW -



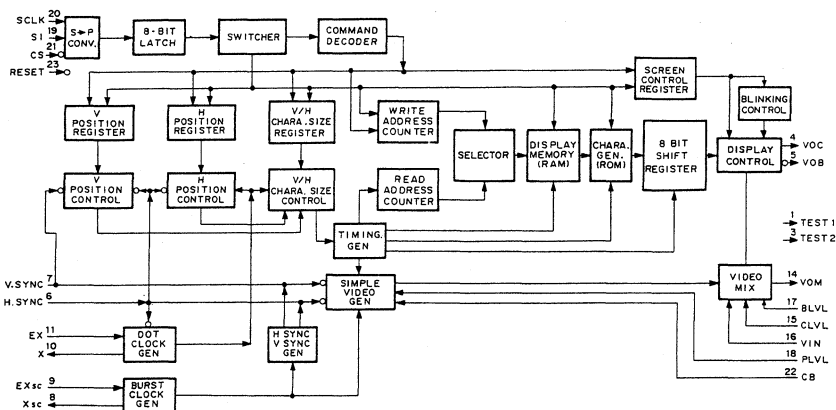
EX ; EXTERNAL XTAL IN
RO-R11 ; I/O PORT(R) IN/OUT
RESET ; RESET IN
START ; STANDBY RELEASE IN
R11/X ; EXT CLOCK IN/INT CLOCK OUT



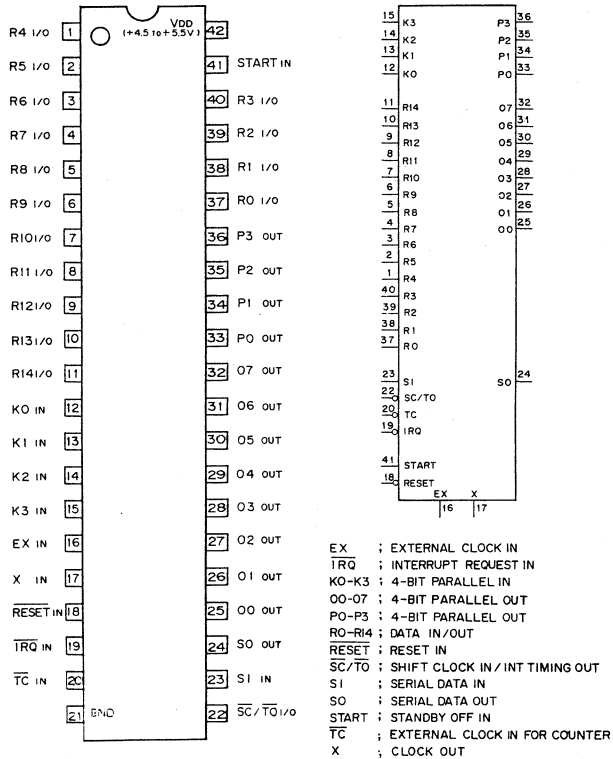
MB88323PF (FUJITSU) FLAT PACKAGE
C-MOS TV DISPLAY CONTROLLER
- TOP VIEW -



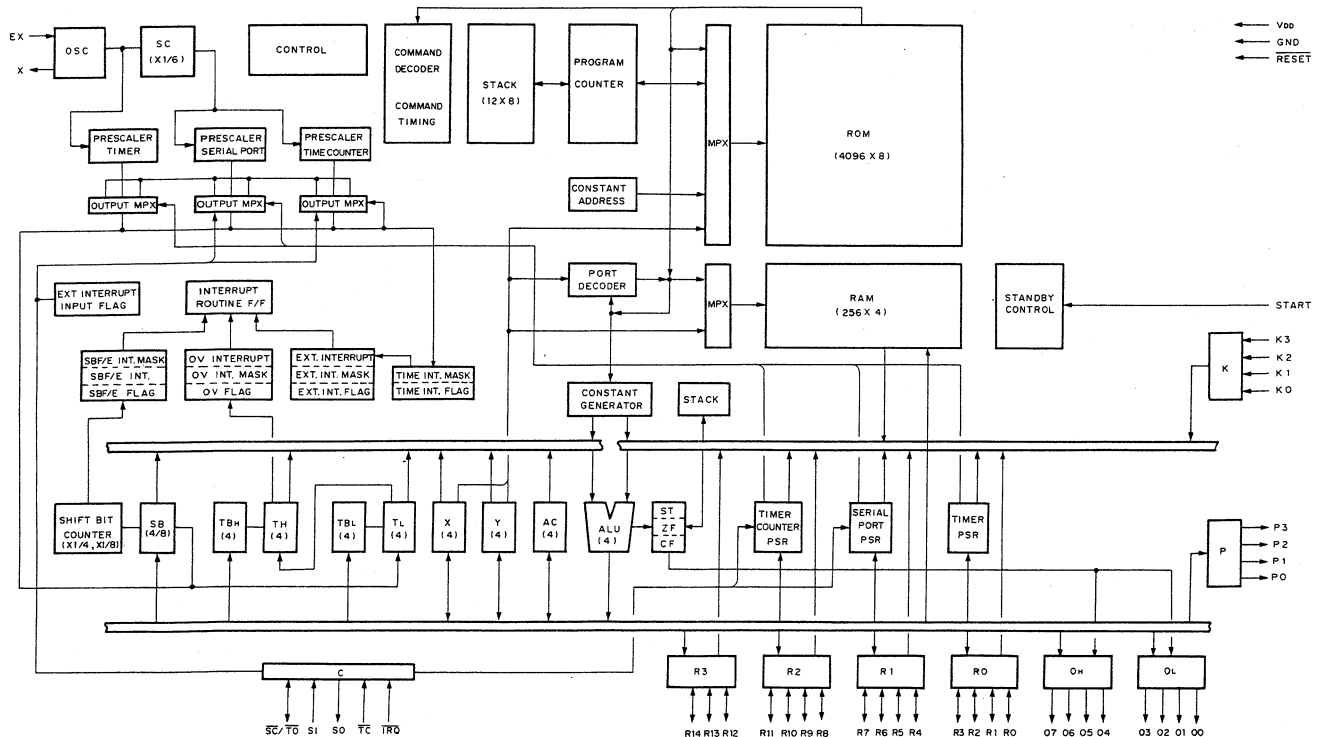
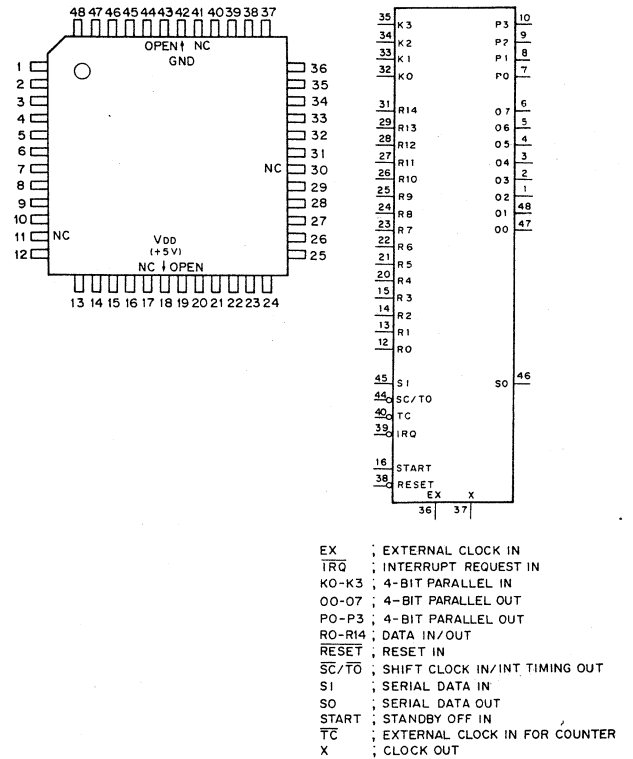
BLVL ; BORDER OR BACKGROUND ANALOG LEVEL INPUT
CB ; COLOR BURST DETECTION INPUT
CLVL ; CHARACTER ANALOG LEVEL INPUT
CS ; CHIP SELECT INPUT
EX ; DOT CLOCK INPUT
EXsc ; COLOR BURST CLOCK INPUT
H.SYNC ; H SYNC INPUT
PLVL ; VIDEO LEVEL CONTROL INPUT
SI ; SERIAL DATA INPUT
TEST1 ; CHIP TEST OUTPUT
TEST2 ; (NORMALLY SET TO OPEN)
VIN ; VIDEO SIGNAL INPUT
VOB ; BORDER OR BACKGROUND SIGNAL OUTPUT
VOC ; CHARACTER SIGNAL OUTPUT
VOM ; VIDEO/CHARACTER/BORDER OR BACKGROUND MIX OUTPUT
V.SYNC ; V SYNC INPUT
X ; DOT CLOCK OUTPUT
Xsc ; COLOR BURST CLOCK OUTPUT



MB88505H-1019M (FUJITSU)
 MB88505P (FUJITSU)
 C-MOS 4-BIT ONE-CHIP MICROCOMPUTER
 — TOP VIEW —

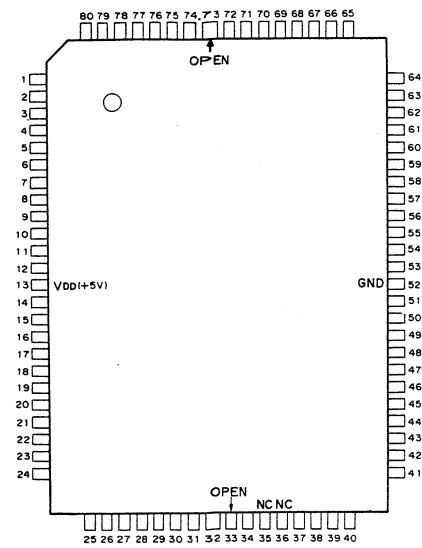


MB88505PF (FUJITSU) FLAT PACKAGE
 C-MOS 4-BIT ONE-CHIP MICROCOMPUTER
 — TOP VIEW —



IC IC

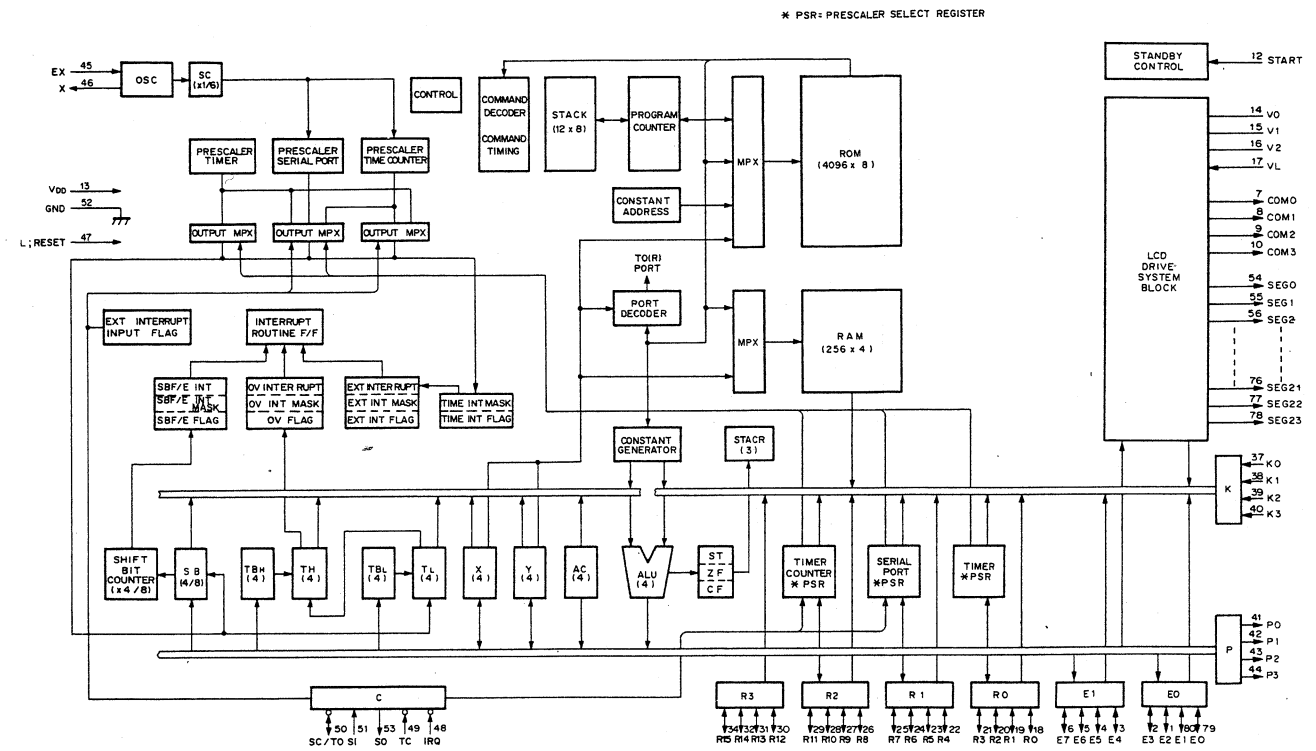
MB88544 (FUJITSU) FLAT PACKAGE
CMOS 4-BIT ONE-CHIP MICROCOMPUTER WITH LCD DRIVER
- TOP VIEW -



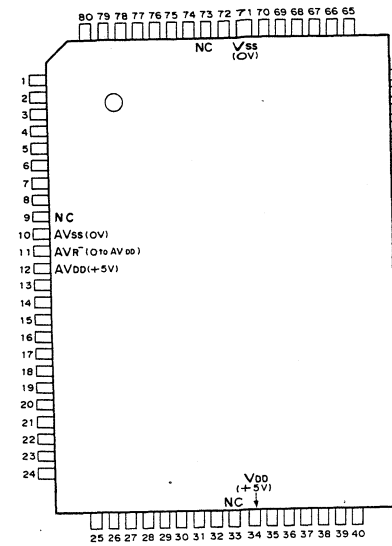
| PIN NO. | IN | OUT | SYMBOL | PIN NO. | IN | OUT | SYMBOL |
|---------|----|-----|----------|---------|----|-----|--------|
| 1 | O | O | E2 | 41 | O | O | P0 |
| 2 | O | O | E3 | 42 | O | O | P1 |
| 3 | O | O | E4 | 43 | O | O | P2 |
| 4 | O | O | E5 | 44 | O | O | P3 |
| 5 | O | O | E6 | 45 | O | O | EX |
| 6 | O | O | E7 | 46 | O | O | X |
| 7 | O | O | COM0 | 47 | O | O | RESET |
| 8 | O | O | COM1 | 48 | O | O | IRQ |
| 9 | O | O | COM2 | 49 | O | O | TC |
| 10 | O | O | COM3 | 50 | O | O | SC/TO |
| 11 | O | O | TEST | 51 | O | O | SI |
| 12 | O | O | START | 52 | O | O | GND |
| 13 | O | O | VDD(+5V) | 53 | O | O | SO |
| 14 | O | O | V0 | 54 | O | O | SEG0 |
| 15 | O | O | V1 | 55 | O | O | SEG1 |
| 16 | O | O | V2 | 56 | O | O | SEG2 |
| 17 | O | O | VL | 57 | O | O | SEG3 |
| 18 | O | O | R0 | 58 | O | O | SEG4 |
| 19 | O | O | R1 | 59 | O | O | SEG5 |
| 20 | O | O | R2 | 60 | O | O | SEG6 |
| 21 | O | O | R3 | 61 | O | O | SEG7 |
| 22 | O | O | R4 | 62 | O | O | SEG8 |
| 23 | O | O | R5 | 63 | O | O | SEG9 |
| 24 | O | O | R6 | 64 | O | O | SEG10 |
| 25 | O | O | R7 | 65 | O | O | SEG11 |
| 26 | O | O | R8 | 66 | O | O | SEG12 |
| 27 | O | O | R9 | 67 | O | O | SEG13 |
| 28 | O | O | R10 | 68 | O | O | SEG14 |
| 29 | O | O | R11 | 69 | O | O | SEG15 |
| 30 | O | O | R12 | 70 | O | O | SEG16 |
| 31 | O | O | R13 | 71 | O | O | SEG17 |
| 32 | O | O | R14 | 72 | O | O | SEG18 |
| 33 | O | O | OPEN | 73 | O | O | OPEN |
| 34 | O | O | R15 | 74 | O | O | SEG19 |
| 35 | O | O | - | 75 | O | O | SEG20 |
| 36 | O | O | - | 76 | O | O | SEG21 |
| 37 | O | O | K0 | 77 | O | O | SEG22 |
| 38 | O | O | K1 | 78 | O | O | SEG23 |
| 39 | O | O | K2 | 79 | O | O | E0 |
| 40 | O | O | K3 | 80 | O | O | E1 |

| | | | |
|----|-----|----|----|
| 18 | R0 | E0 | 78 |
| 19 | R1 | E1 | 80 |
| 20 | R2 | E2 | 1 |
| 21 | R3 | E3 | 2 |
| 22 | R4 | E4 | 3 |
| 23 | R5 | E5 | 4 |
| 24 | R6 | E6 | 5 |
| 25 | R7 | E7 | 6 |
| 26 | R8 | | |
| 27 | R9 | | |
| 28 | R10 | P0 | 41 |
| 29 | R11 | P1 | 42 |
| 30 | R12 | P2 | 43 |
| 31 | R13 | P3 | 44 |
| 32 | R14 | | |
| 33 | R15 | | |
| 34 | | | |
| 35 | | | |
| 36 | | | |
| 37 | K0 | | |
| 38 | K1 | | |
| 39 | K2 | | |
| 40 | K3 | | |
| 41 | | | |
| 42 | | | |
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COM0-COM3 ; LCD COMMON OUT
E0-E7 ; I/O PORT (R PORT) IN/OUT
EX ; EXTERNAL CLOCK IN
IRQ ; EXTERNAL INTERRUPT
REQUEST IN ()
K0-K3 ; K PORT IN
P0-P3 ; P PORT OUT
R0-R15 ; I/O PORT (R PORT) IN/OUT
RESET ; RESET IN
SC/TO ; SHIFT CLOCK IN/OUT/TIMING OUT
SEG0-SEG23 ; LCD SEGMENT OUT
SI ; SERIAL DATA IN
SO ; SERIAL DATA OUT
START ; STANDBY OFF IN
TC ; COUNT CLOCK IN ()
V0-V2 ; LCD DRIVE BIAS VOLTAGE
VL ; LCD DRIVE BIAS ON/OFF CONTROL
X ; EXTERNAL CLOCK OUT

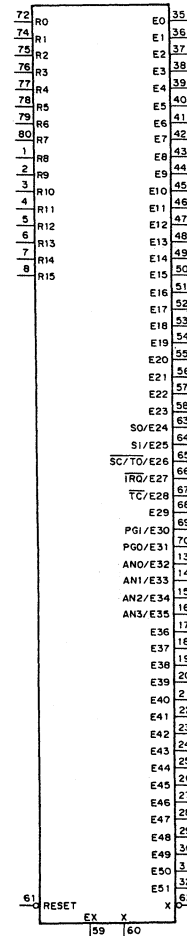


MB88551-H (FUJITSU) FLAT PACKAGE
C-MOS 4 BIT ONE-CHIP MICROPROCESSOR
— TOP VIEW —



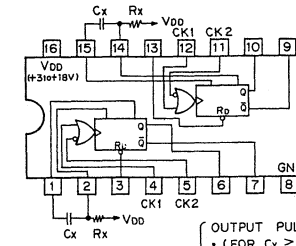
| IN | OUT | SYMBOL | IN | OUT | SYMBOL |
|----|-----|---------|----|-----|------------|
| 1 | 0 | R8 | 41 | 0 | E6 |
| 2 | 0 | R9 | 42 | 0 | E7 |
| 3 | 0 | R10 | 43 | 0 | E8 |
| 4 | 0 | R11 | 44 | 0 | E9 |
| 5 | 0 | R12 | 45 | 0 | E10 |
| 6 | 0 | R13 | 46 | 0 | E11 |
| 7 | 0 | R14 | 47 | 0 | E12 |
| 8 | 0 | R15 | 48 | 0 | E13 |
| 9 | 0 | — | 49 | 0 | E14 |
| 10 | 0 | AVss | 50 | 0 | E15 |
| 11 | 0 | AVR | 51 | 0 | E16 |
| 12 | 0 | AVDD | 52 | 0 | E17 |
| 13 | 0 | E32/ANO | 53 | 0 | E18 |
| 14 | 0 | E33/AN1 | 54 | 0 | E19 |
| 15 | 0 | E34/AN2 | 55 | 0 | E20 |
| 16 | 0 | E35/AN3 | 56 | 0 | E21 |
| 17 | 0 | E36 | 57 | 0 | E22 |
| 18 | 0 | E37 | 58 | 0 | E23 |
| 19 | 0 | E38 | 59 | 0 | EX |
| 20 | 0 | E39 | 60 | 0 | X |
| 21 | 0 | E40 | 61 | 0 | RESET |
| 22 | 0 | E41 | 62 | 0 | X/(OPEN)* |
| 23 | 0 | E42 | 63 | 0 | E24/SO |
| 24 | 0 | E43 | 64 | 0 | E25/SI |
| 25 | 0 | E44 | 65 | 0 | E26/SC/TO |
| 26 | 0 | E45 | 66 | 0 | E27/IRQ |
| 27 | 0 | E46 | 67 | 0 | E28/TC |
| 28 | 0 | E47 | 68 | 0 | E29/START* |
| 29 | 0 | E48 | 69 | 0 | E30/PGI |
| 30 | 0 | E49 | 70 | 0 | E31/PGO |
| 31 | 0 | E50 | 71 | 0 | Vss |
| 32 | 0 | E51 | 72 | 0 | RO |
| 33 | 0 | — | 73 | 0 | — |
| 34 | 0 | VDD | 74 | 0 | R1 |
| 35 | 0 | E0 | 75 | 0 | R2 |
| 36 | 0 | E1 | 76 | 0 | R3 |
| 37 | 0 | E2 | 77 | 0 | R4 |
| 38 | 0 | E3 | 78 | 0 | R5 |
| 39 | 0 | E4 | 79 | 0 | R6 |
| 40 | 0 | E5 | 80 | 0 | R7 |

* MASK OPTION



AN0-AN3 ;ANALOG SIGNAL IN
RO-E51 ;I/O PORT (E PORT) IN/OUT
EX ;EXTERNAL CLOCK IN
IRQ ;EXTERNAL INTERRUPT REQUEST IN ()
PGI ;PROGRAMABLE PULSE GENERATOR TRIGGER IN
PGO ;PROGRAMABLE PULSE GENERATOR OUT
RO-R15 ;I/O PORT (R PORT) IN/OUT
RESET ;RESET IN
SC/TO ;SHIFT CLOCK IN/OUT /TIMING OUT
SI ;SERIAL DATA IN
SO ;SERIAL DATA OUT
TC ;COUNT CLOCK IN ()
X ;CLOCK OUT

MC14528BCP (MOTOROLA)
TC4528BFHB (TOSHIBA) FLAT PACKAGE
C-MOS RETRIGGERABLE/RESETTABLE MMV
— TOP VIEW —

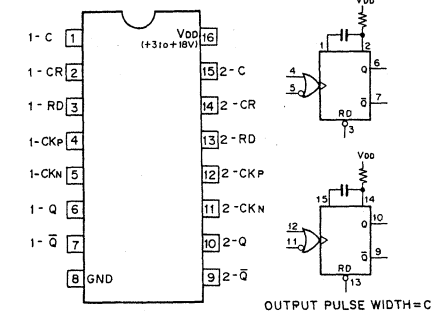


| INPUTS | OUTPUTS |
|----------------|---------|
| CK1 CK2 RD 0 1 | Q 0 1 |
| 0 1 0 1 0 1 | Q 0 1 |
| 1 0 1 0 1 0 | Q 0 1 |
| 0 1 0 1 0 1 | Q 0 1 |
| 1 0 1 0 1 0 | Q 0 1 |
| 0 1 0 1 0 1 | Q 0 1 |
| 1 0 1 0 1 0 | Q 0 1 |
| 0 1 0 1 0 1 | Q 0 1 |

0: LOW LEVEL
1: HIGH LEVEL
X: DON'T CARE

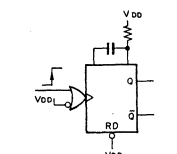
OUTPUT PULSE WIDTH Q OR \bar{Q}
• (FOR $C_x \geq 0.01\mu F$ USE FORMULA)
 $PW = 0.2 \cdot R_x \cdot C_x \cdot \ln(V_{DD} - GND)$
• (FOR $C_x < 0.01\mu F$ USE DATA BOOK)

MC14538BCP (MOTOROLA)
TC4538BF (TOSHIBA) FLAT PACKAGE
C-MOS DUAL RETRIGGERABLE/NON-RETRIGGERABLE
MONOSTABLE MULTIVIBRATOR
— TOP VIEW —

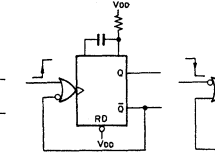


OUTPUT PULSE WIDTH=CR

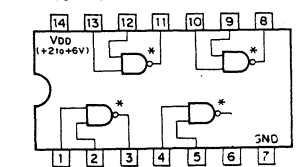
RETRIGGERABLE M.M.V



NON-RETRIGGERABLE M.M.V



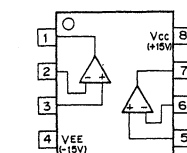
MC74HC03N (MOTOROLA)
SN74HC03NS (TI)
C-MOS 2-INPUT POSITIVE-NAND GATE WITH OPEN-DRAIN
— TOP VIEW —



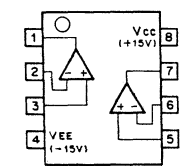
| A | B | Y |
|---|---|------|
| 0 | 0 | HI-Z |
| 0 | 1 | HI-Z |
| 1 | 0 | HI-Z |
| 1 | 1 | 0 |

0: LOW LEVEL
1: HIGH LEVEL
HI-Z: HIGH IMPEDANCE

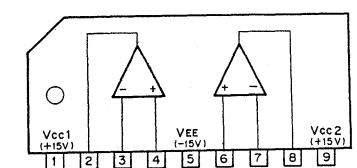
NJM2041D (JRC)
OPERATIONAL AMPLIFIER
— TOP VIEW —



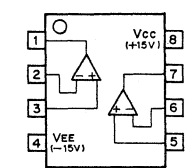
NJM4560D (JRC)
OPERATIONAL AMPLIFIER
— TOP VIEW —



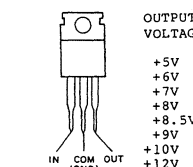
NJM4562S-D (JRC)
HIGH PERFORMANCE DUAL OPERATIONAL AMPLIFIER
— SIDE VIEW —



NJM5532M (JRC) FLAT PACKAGE
OPERATIONAL AMPLIFIER
— TOP VIEW —



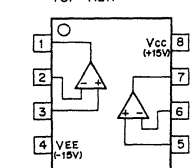
NJM7805A (JRC)
POSITIVE VOLTAGE REGULATOR (1A)
— SIDE VIEW —



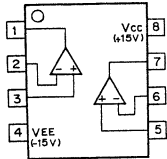
| OUTPUT VOLTAGE | AN78?? | FS78?? | HA178??P | L78?? | NJM78??B | NJM78??A/K |
|----------------|--------|--------|----------|-------|----------|------------|
| +5V | AN7805 | FS7805 | HA17805P | L7805 | ----- | NJM7805A/K |
| +6V | AN7806 | ----- | HA17806P | ----- | ----- | NJM7806A/K |
| +7V | AN7807 | ----- | HA17807P | L7807 | ----- | NJM7807A/K |
| +8V | AN7808 | ----- | HA17808P | ----- | ----- | NJM7808A/K |
| +8.5V | ----- | ----- | ----- | ----- | ----- | ----- |
| +9V | AN7809 | ----- | ----- | ----- | ----- | NJM7809A/K |
| +10V | AN7810 | ----- | ----- | ----- | ----- | ----- |
| +12V | AN7812 | FS7812 | HA17812P | ----- | NJM7812B | NJM7812A/K |
| +15V | AN7815 | FS7815 | HA17815P | ----- | ----- | NJM7815A/K |
| +18V | AN7818 | ----- | HA17818P | ----- | ----- | NJM7818A/K |
| +20V | AN7820 | ----- | ----- | ----- | ----- | NJM7820A/K |
| +24V | AN7824 | FS7824 | HA17824P | ----- | ----- | NJM7824A/K |

| OUTPUT VOLTAGE | UA78??UC | uPC143??H | uPC78??H | TA78??P/AP |
|----------------|----------|-----------|----------|-------------|
| +5V | UA7805UC | uPC14305H | uPC7805H | TA78005P/AP |
| +6V | UA7806UC | ----- | ----- | TA78006P/AP |
| +7V | UA7807UC | ----- | ----- | ----- |
| +8V | UA7808UC | uPC14308H | uPC7808H | TA78008P/AP |
| +8.5V | UA7809UC | ----- | ----- | ----- |
| +9V | ----- | ----- | ----- | TA78009P/AP |
| +10V | ----- | ----- | ----- | TA78010P/AP |
| +12V | UA7812UC | uPC14312H | uPC7812H | TA78012P/AP |
| +15V | UA7815UC | uPC14315H | uPC7815H | TA78015P/AP |
| +18V | UA7818UC | uPC14318H | uPC7818H | TA78018P/AP |
| +20V | ----- | ----- | ----- | TA78020P/AP |
| +24V | UA7824UC | uPC14324H | uPC7824H | TA78024P/AP |

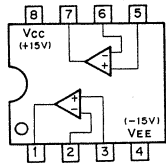
RC2041MD (RAYTHEON) FLAT PACKAGE
OPERATIONAL AMPLIFIER
— TOP VIEW —



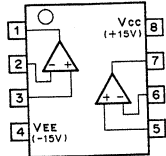
RC2043MD (RAYTHEON) FLAT PACKAGE
OPERATIONAL AMPLIFIER
— TOP VIEW —



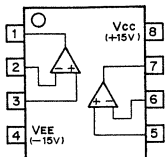
RC4558 (RAYTHEON)
RC4558M (RAYTHEON) FLAT PACKAGE
uPC4558G2 (NEC) FLAT PACKAGE
OPERATIONAL AMPLIFIER
— TOP VIEW —



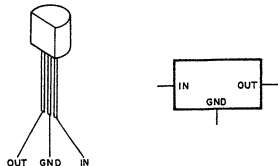
RC4560M (RAYTHEON) FLAT PACKAGE
OPERATIONAL AMPLIFIER
— TOP VIEW —



RC5532M (RAYTHEON) FLAT PACKAGE
OPERATIONAL AMPLIFIER
— TOP VIEW —



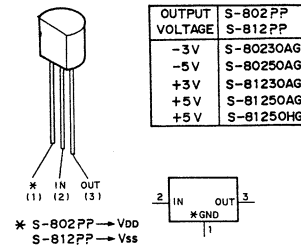
RC78L ? ? A (RAYTHEON)
uA78L ? ? AWV (FSC)
POSITIVE VOLTAGE REGULATOR (100mA)



OUTPUT VOLTAGE NJM78L??A RC78L??A uA78L??ACL uA78L??AWV uPC78L??J AN78L??

| OUTPUT VOLTAGE | NJM78L??A | RC78L??A | uA78L??ACL | uA78L??AWV | uPC78L??J | AN78L?? |
|----------------|-----------|----------|------------|------------|-----------|---------|
| +2.6V | NJM78L02A | RC78L02A | uA78L02ACL | uA78L26AWV | ----- | AN78L04 |
| +4V | NJM78L05A | RC78L05A | uA78L05ACL | uA78L05AWV | uPC78L05J | AN78L05 |
| +5V | NJM78L06A | RC78L06A | uA78L06ACL | uA78L06AWV | ----- | AN78L06 |
| +6V | NJM78L08A | RC78L08A | uA78L08ACL | uA78L08AWV | ----- | AN78L07 |
| +6.2V | NJM78L09A | RC78L09A | uA78L09ACL | uA78L09AWV | uPC78L08J | AN78L08 |
| +7V | NJM78L10A | RC78L10A | uA78L10ACL | uA78L10AWV | ----- | AN78L09 |
| +8V | NJM78L12A | RC78L12A | uA78L12ACL | uA78L12AWV | uPC78L10J | AN78L10 |
| +8.2V | NJM78L15A | RC78L15A | uA78L15ACL | uA78L15AWV | uPC78L12J | AN78L11 |
| +9V | NJM78L18A | RC78L18A | uA78L18ACL | uA78L18AWV | ----- | AN78L12 |
| +10V | NJM78L20A | RC78L20A | uA78L20ACL | uA78L20AWV | ----- | AN78L15 |
| +12V | NJM78L24A | RC78L24A | uA78L24ACL | uA78L24AWV | ----- | AN78L18 |
| +15V | NJM78L26A | RC78L26A | uA78L26ACL | uA78L26AWV | ----- | AN78L20 |
| +18V | NJM78L28A | RC78L28A | uA78L28ACL | uA78L28AWV | ----- | AN78L24 |
| +20V | NJM78L30A | RC78L30A | uA78L30ACL | uA78L30AWV | ----- | AN78L26 |
| +24V | NJM78L36A | RC78L36A | uA78L36ACL | uA78L36AWV | ----- | AN78L30 |

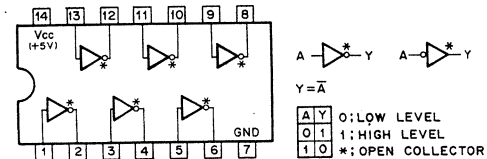
S-812?? (SEIKO I AND E)
C-MOS VOLTAGE REGULATOR



| OUTPUT VOLTAGE | S-802??P | S-812??P |
|----------------|-----------|-----------|
| -3V | S-80230AG | S-81230AG |
| -5V | S-80250AG | S-81250AG |
| +3V | S-81230AG | S-81230AG |
| +5V | S-81250AG | S-81250AG |
| +5V | S-81250HG | S-81250HG |

* S-802??P → VDD
S-812??P → VSS

SN74ALS05AN (TI)
TTL INVERTER WITH OPEN-COLLECTOR
— TOP VIEW —



A —*— Y A —*— Y

Y = \bar{A}

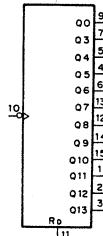
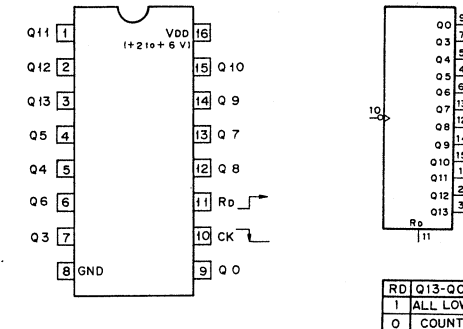
| A | Y | 0 | 1 |
|---|---|---|---|
| 0 | 1 | 0 | 1 |
| 1 | 0 | 1 | 0 |

0; LOW LEVEL

1; HIGH LEVEL

*; OPEN COLLECTOR

SN74HC4020NS (TI)
C-MOS 14-STAG RIPPLE-CARRY BINARY COUNTER/DRIVER
— TOP VIEW —

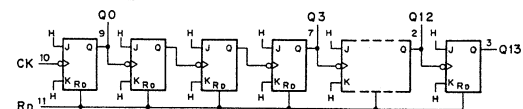


| RD | Q13-Q0 |
|----|---------|
| 1 | ALL LOW |
| 0 | COUNT |

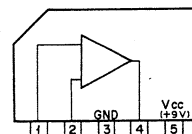
| COUNT | BINARY OUTPUTS | | | | | | | | | | | | | |
|-------|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | Q13 | Q12 | Q11 | Q10 | Q9 | Q8 | Q7 | Q6 | Q5 | Q4 | Q3 | Q2 | Q1 | Q0 |
| 0 | 0000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2 | 0002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 3 | 0003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 4 | 0004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 16380 | 4FFC | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 16381 | 4FFD | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 16382 | 4FFE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 16383 | 4FFF | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

IN HEXADECIMAL
IN DECIMAL

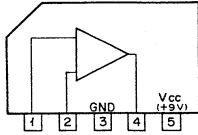
0; LOW LEVEL
1; HIGH LEVEL



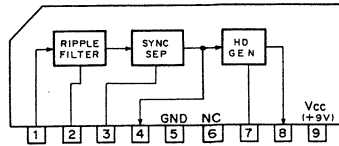
TA7060AP (TOSHIBA)
LINEAR AMP
— SIDE VIEW —



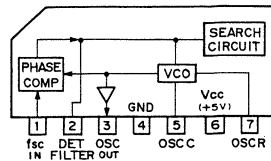
TA7060P (TOSHIBA)
LINEAR AMP
— SIDE VIEW —



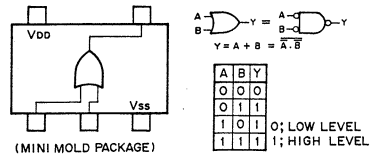
TA7357AP (TOSHIBA)
SYNC SEPARATOR/HD PULSE GENERATOR
— SIDE VIEW —



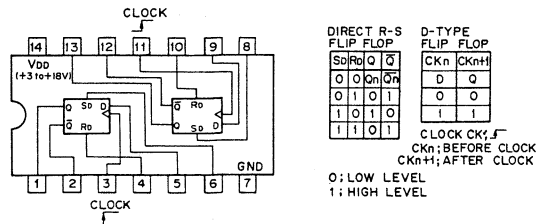
TA7374P (TOSHIBA)
THREE TIMES OSCILLATOR
— SIDE VIEW —



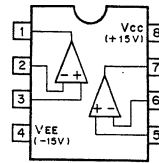
TC4S71F (TOSHIBA) FLAT PACKAGE
C-MOS 2-INPUT OR GATE
— TOP VIEW —



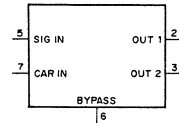
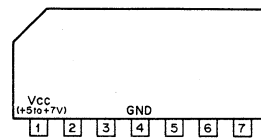
TC504013BF (TOSHIBA) FLAT PACKAGE
C-MOS D-TYPE FLIP FLOP WITH DIRECT SET/RESET
— TOP VIEW —



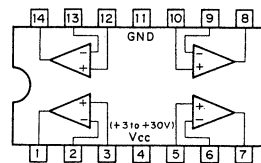
TL082CP (TI)
TL082CPS (TI) FLAT PACKAGE
OPERATIONAL AMPLIFIER
(J FET-INPUT)
— TOP VIEW —



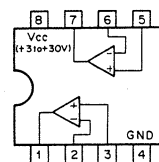
uPC1037HA (NEC)
DOUBLE-BALANCED MODULATOR
— SIDE VIEW —



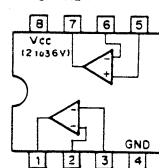
uPC324G2 (NEC) FLAT PACKAGE
QUAD. OP AMPLIFIER
— TOP VIEW —



uPC358G2 (NEC) FLAT PACKAGE
DUAL OPERATIONAL AMPLIFIERS
— TOP VIEW —

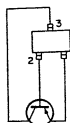


uPC393G2 (NEC) FLAT PACKAGE
VOLTAGE COMPARATOR
— TOP VIEW —



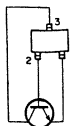
TRANSISTOR

TOP VIEW



2SA1162G
2SA1226
2SA812

TOP VIEW

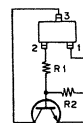


2SC1623
2SC2712
2SC2715
2SC2757
2SD1030



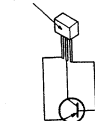
2SD1055

TOP VIEW



DTC114TU
(R1 = 10K, R2 = ∞)
DTC114YK
(R1 = 10K, R2 = 47K)
DTC144EK
(R1 = 47K, R2 = 47K)

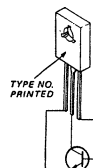
TYPE NO.
PRINTED



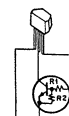
2SA1175F



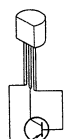
2SC2562



2SD1685

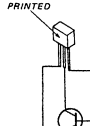


DTC144ES
(R1 = 47K, R2 = 47K)

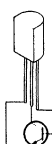


2SA844

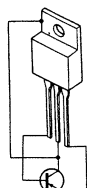
TYPE NO.
PRINTED



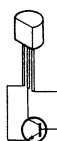
2SC2785K



2SD788
2SD789

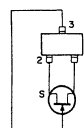


2SB553

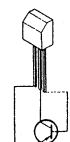


2SC2878

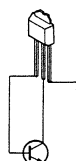
TOP VIEW



2SK94

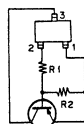


2SB733



2SC3072
2SC3326
2SD1160

TOP VIEW



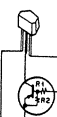
DTA114TU
(R1 = 10K, R2 = ∞)
DTA144EK
(R1 = 47K, R2 = 47K)



2SB822

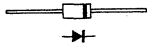


2SC403SP

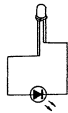


DTA144ES
(R1 = 47K, R2 = 47K)

DIODE



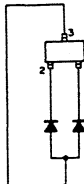
10E-2
1S1555S



BR5505S ; RED



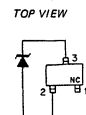
RP5551K ; RED



1S2835



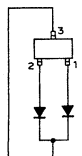
EBR3402S ; RED
SLR-932A ; INFRARED
TLR124 ; RED



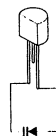
TOP VIEW

RD ? ?MB?

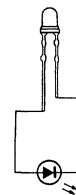
TOP VIEW



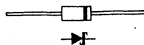
1S2837



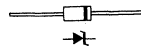
FC54M



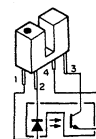
SLH-34YT3 ; YELLOW



1SS119
1SS97-1
1SS99
ERA81-004
ERB81-004

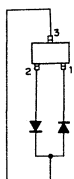


HZS ? ?L
HZS11C2L
RD ? ?EB ?
RD ? ?ESB ?
RD ? ?EL ?
RD ? ?FB ?



TLP801A

TOP VIEW



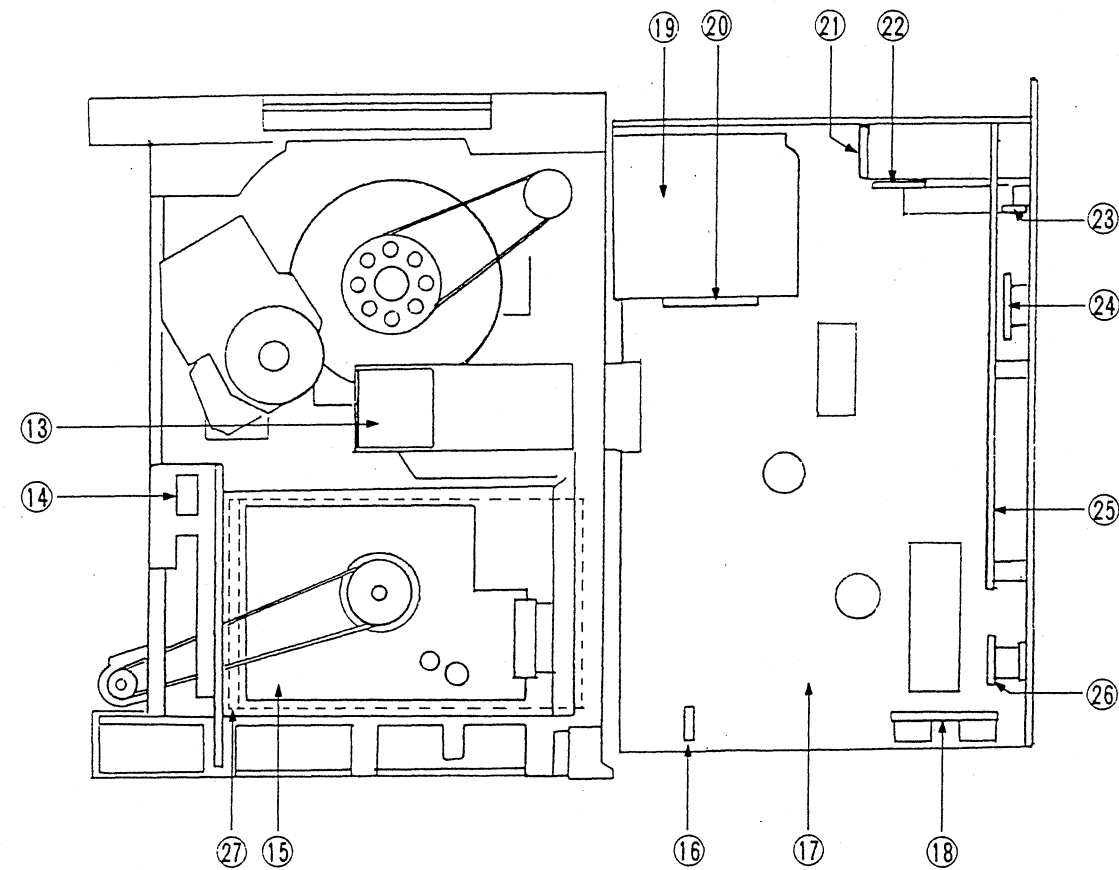
1SS123



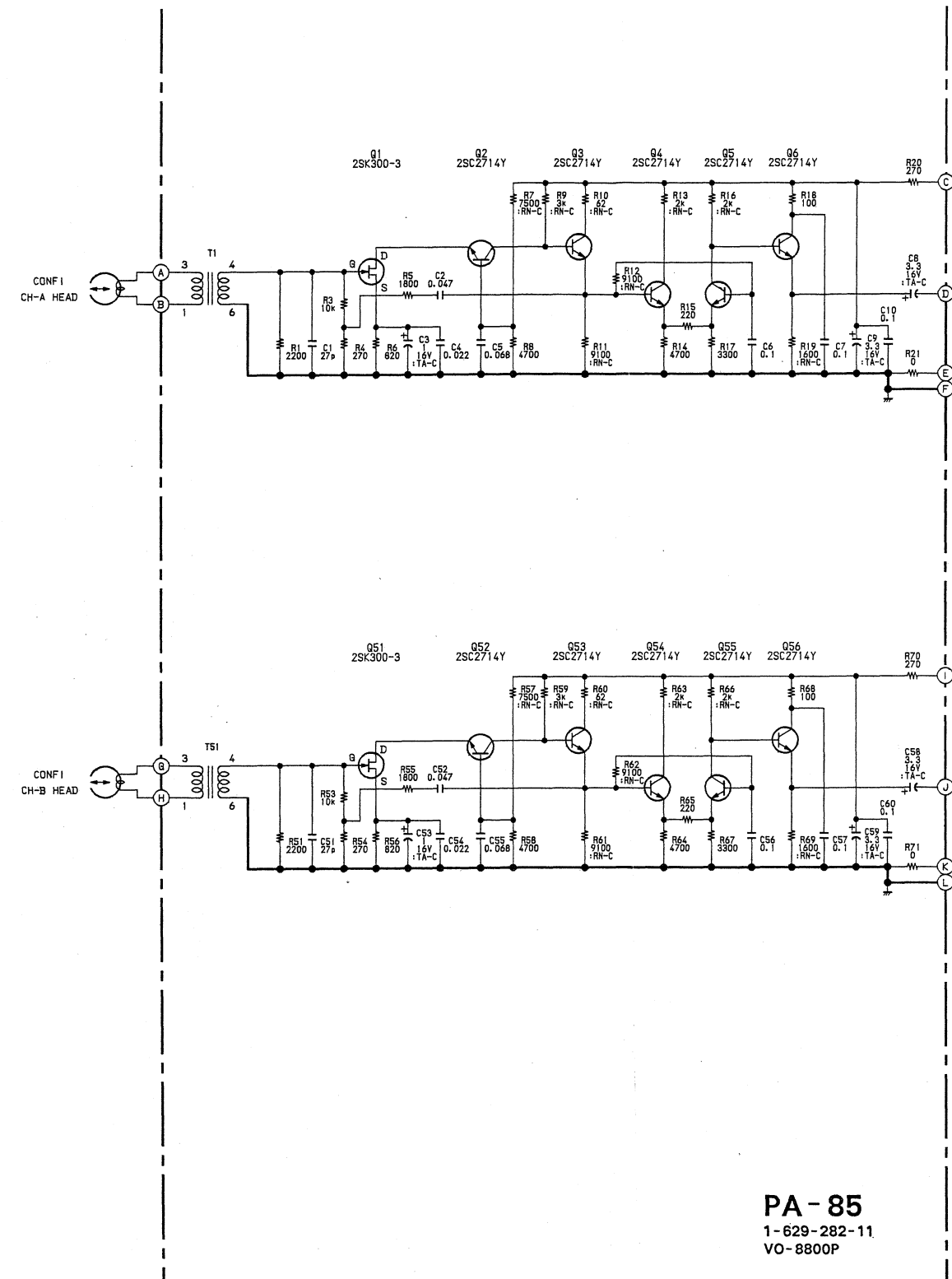
PH302B

PA - 85 : CONF1 RF PB AMPLIFIER

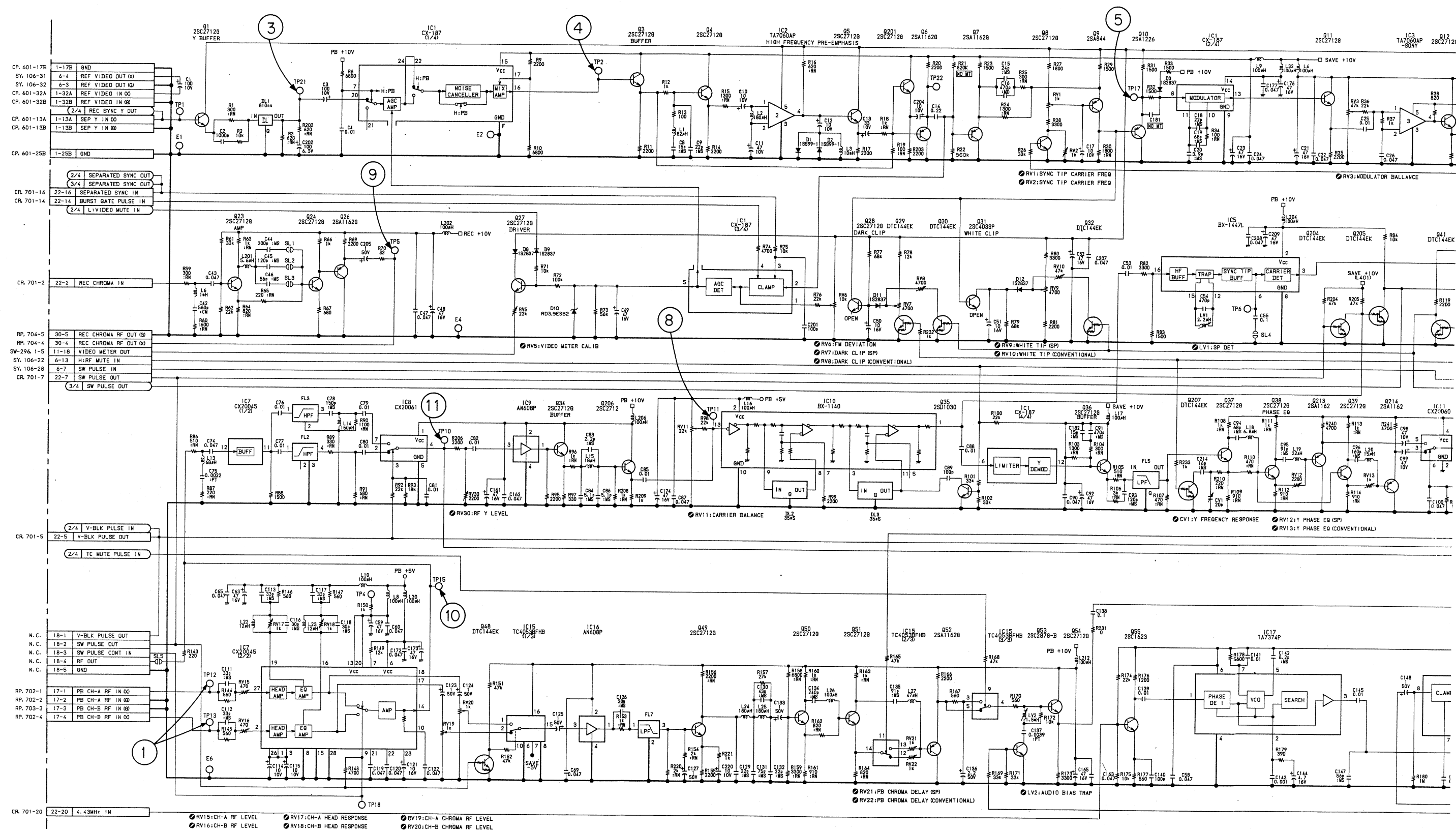
< BOTTOM VIEW >

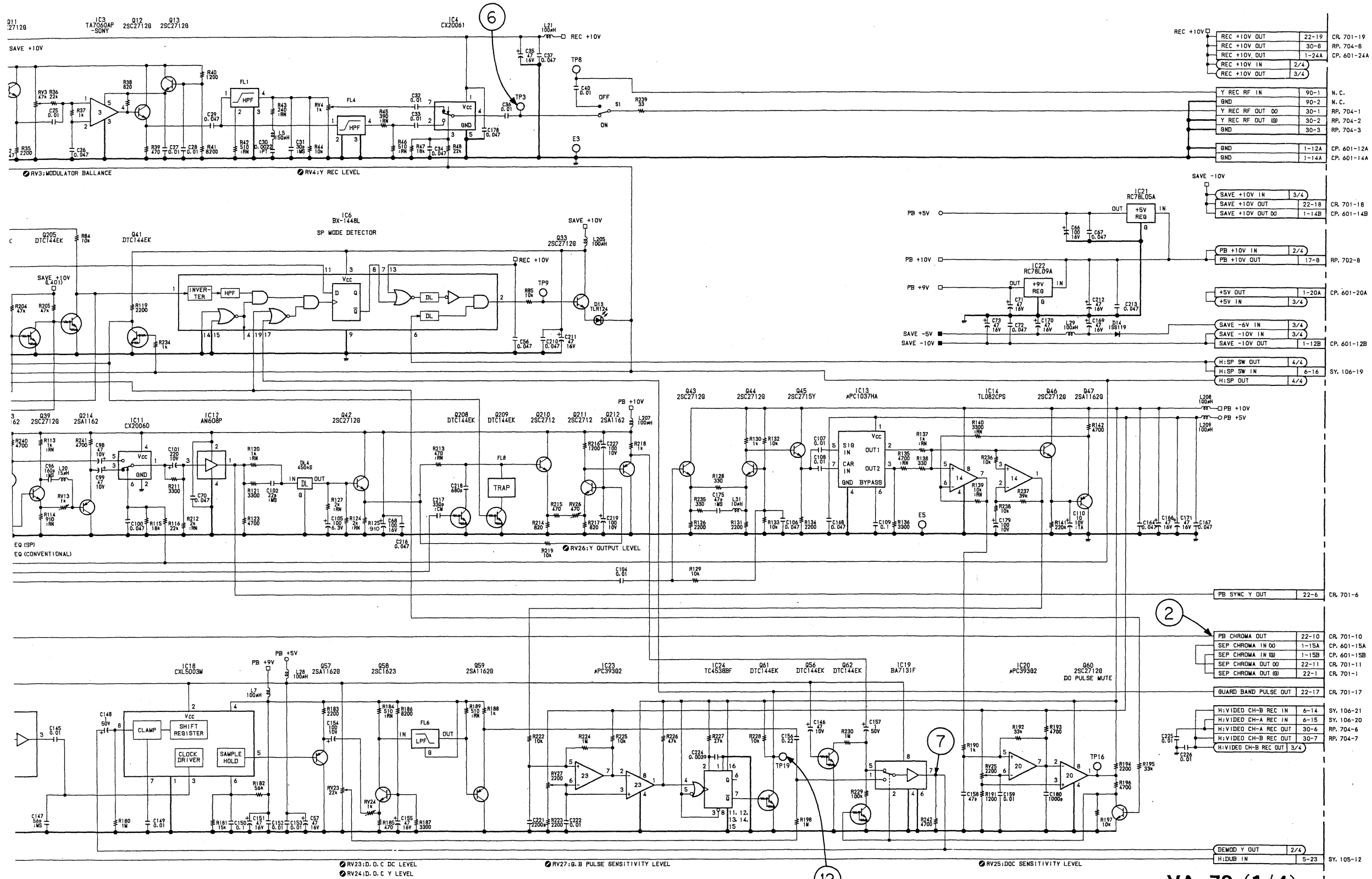


- | | |
|---|---|
| ⑬ RP Board | ⑫ RMD-2 Board (For UC, J only) |
| ⑭ BP-15 Board (UC: UP TO S/N 10700) (EK: UP TO S/N 10300) | ⑬ VR-85 Board |
| ⑮ HN-102 Board | ⑭ CM-23 Board |
| ⑯ HP-45 Board | ⑮ CP Board |
| ⑰ VA Board | ⑯ TR-54 Board |
| ⑱ SW-296 Board | ⑰ BP-16 Board (UC: S/N 10701 AND HIGHER) (EK: S/N 10301 AND HIGHER) |
| ⑲ CR Board | |
| ⑳ DUS-262 Board | |
| ㉑ CN-271 Board | |



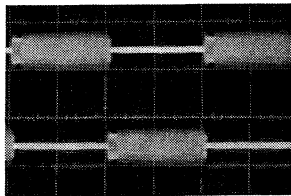
PA - 85
1-629-282-11
VO-8800P



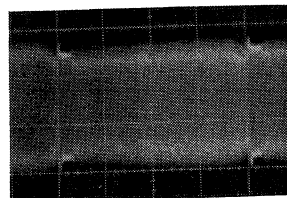


VA-76 (1/4)
1-629-231-11,12,13,14,15
VO-8800P

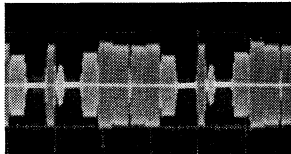
① TP12
TP13
PB
TRIG; TP18
H; 10msec/DIV
V; 0.05V/DIV



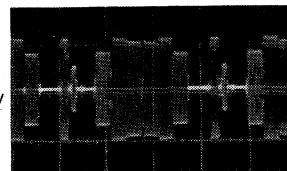
⑧ TP11
PB
H; 5msec/DIV
V; 0.1V/DIV



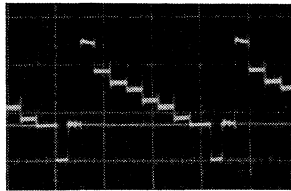
② CN22-10PIN
PB
H; 20μsec/DIV
V; 0.1V/DIV



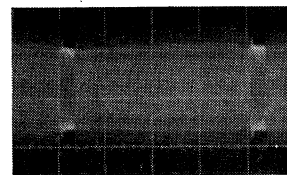
⑨ TP5
EE
H; 20μsec/DIV
V; 0.5V/DIV



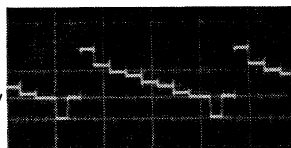
③ TP21
EE
H; 20μsec/DIV
V; 0.2V/DIV



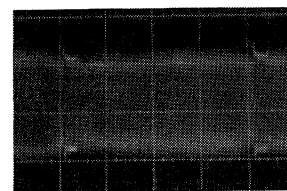
⑩ TP15
PB
H; 5msec/DIV
V; 0.5V/DIV



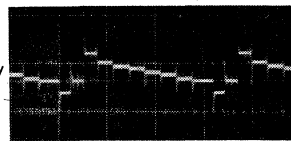
④ TP2
EE
H; 20μsec/DIV
V; 0.5V/DIV



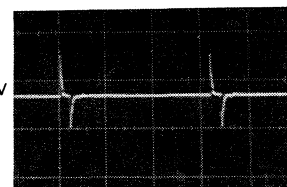
⑪ TP10
PB
H; 5msec/DIV
V; 0.1V/DIV



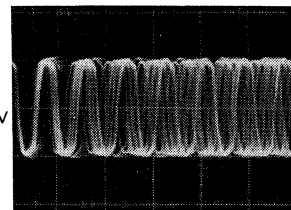
⑤ TP17
EE
H; 20μsec/DIV
V; 1V/DIV



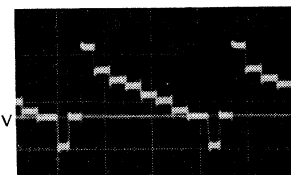
⑫ TP19
EE
H; 20μsec/DIV
V; 0.5V/DIV



⑥ TP3
EE
H; 0.2μsec/DIV
V; 0.2V/DIV



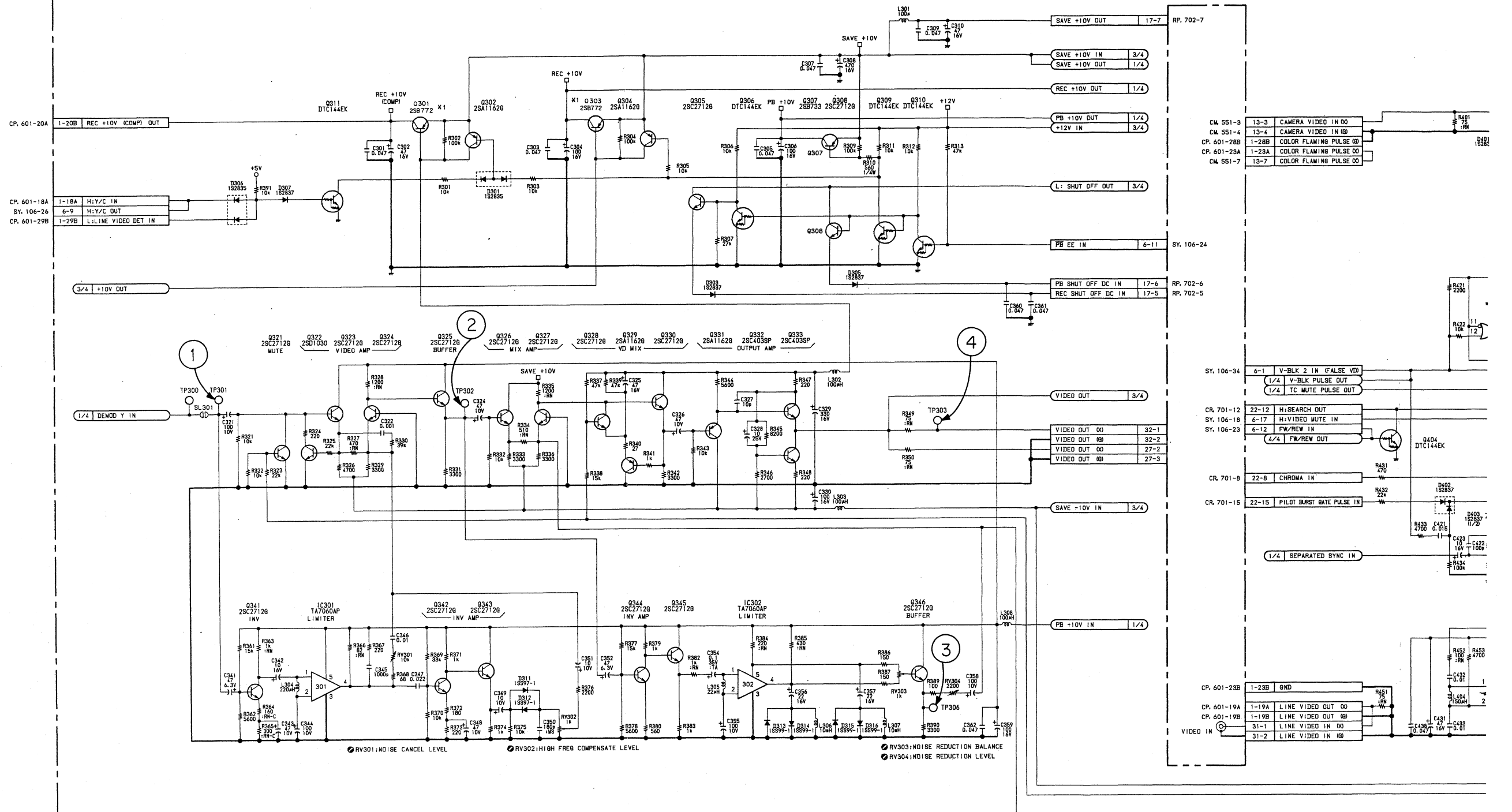
⑦ IC19-7PIN
PB
H; 20μsec/DIV
V; 0.2V/DIV

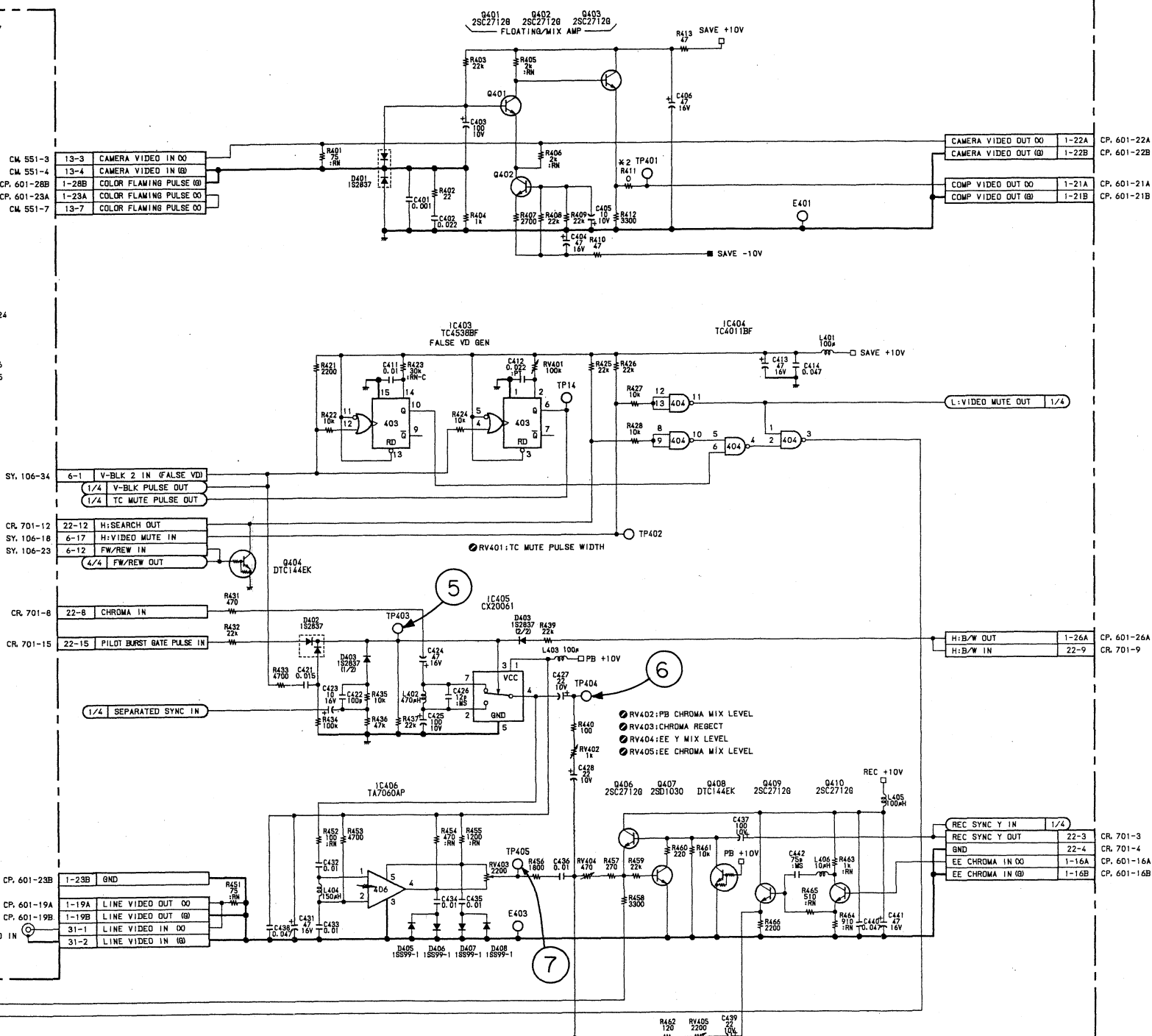


VA - 76 (2/4) : Y/C MIX, VIDEO OUTPUT

NOTE

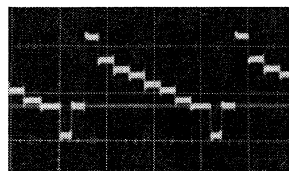
| MARK | CHANGE INFORMATION | SERIAL NO. |
|------|---------------------------|-------------|
| #1 | Q301, 302 2SB733 → 2SB772 | S/N 10651 ~ |
| #2 | R411 33 → 0 | S/N 11451 ~ |



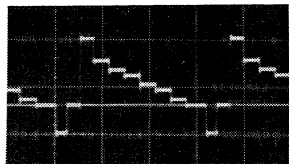


VA-76 (2/4)
1-629-231-11,12,13,14,15
VO-8800P

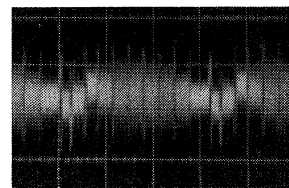
① TP301
PB
H; 20 μ sec/DIV
V; 0.2V/DIV



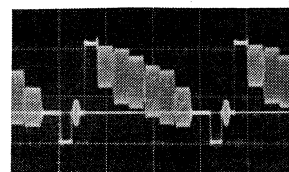
② TP302
PB
H; 20 μ sec/DIV
V; 0.5V/DIV



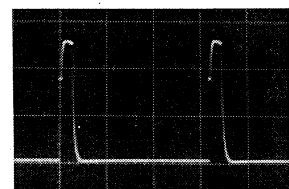
③ TP306
PB
H; 20 μ sec/DIV
V; 0.02V/DIV



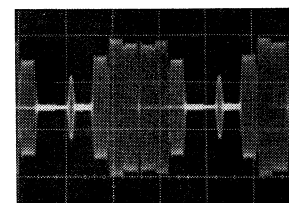
④ TP303
EE
H; 20 μ sec/DIV
V; 1V/DIV



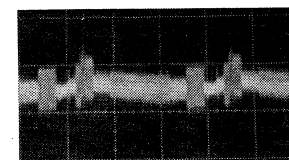
⑤ TP403
PB
H; 20 μ sec/DIV
V; 2V/DIV



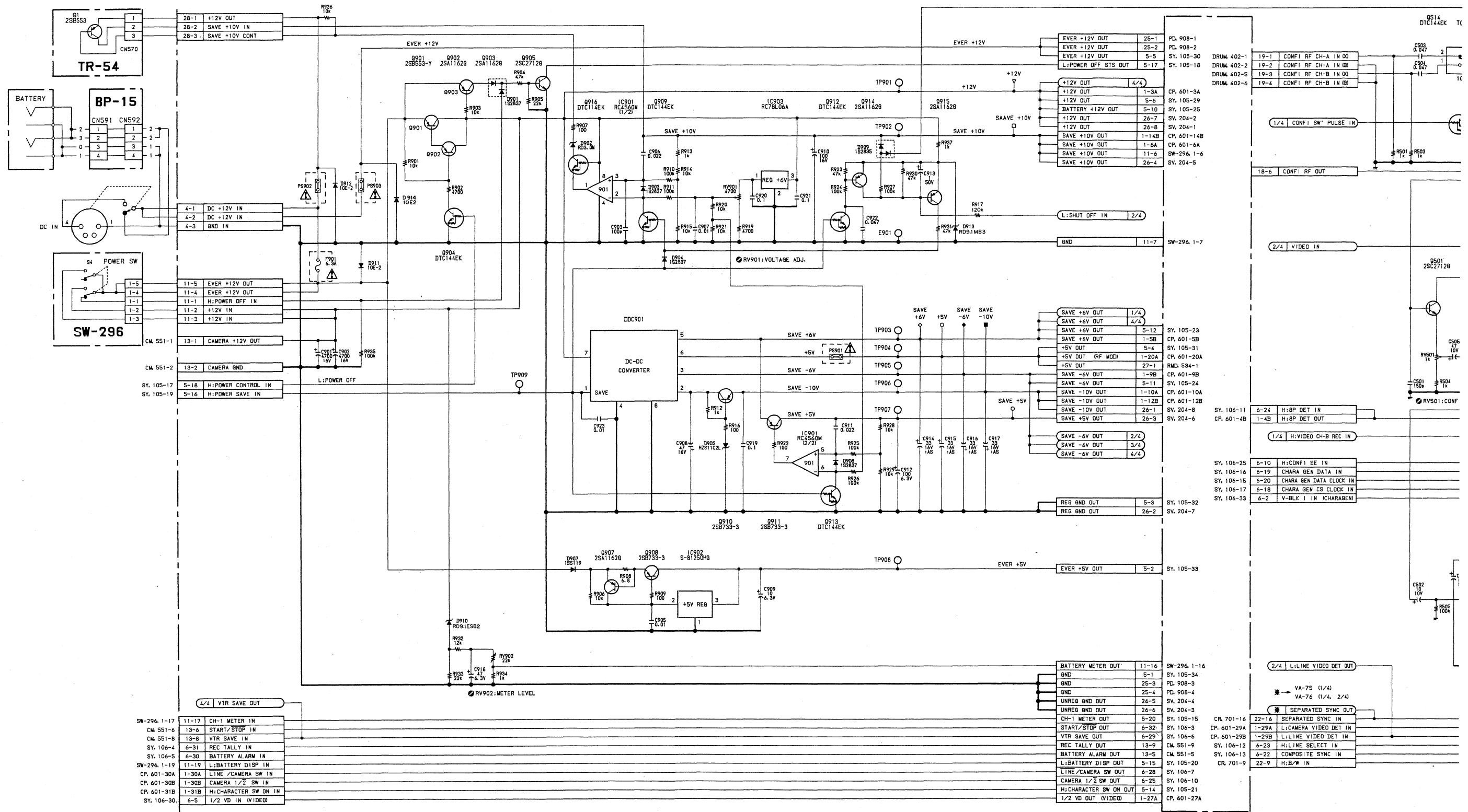
⑥ TP404
PB
H; 20 μ sec/DIV
V; 0.2V/DIV

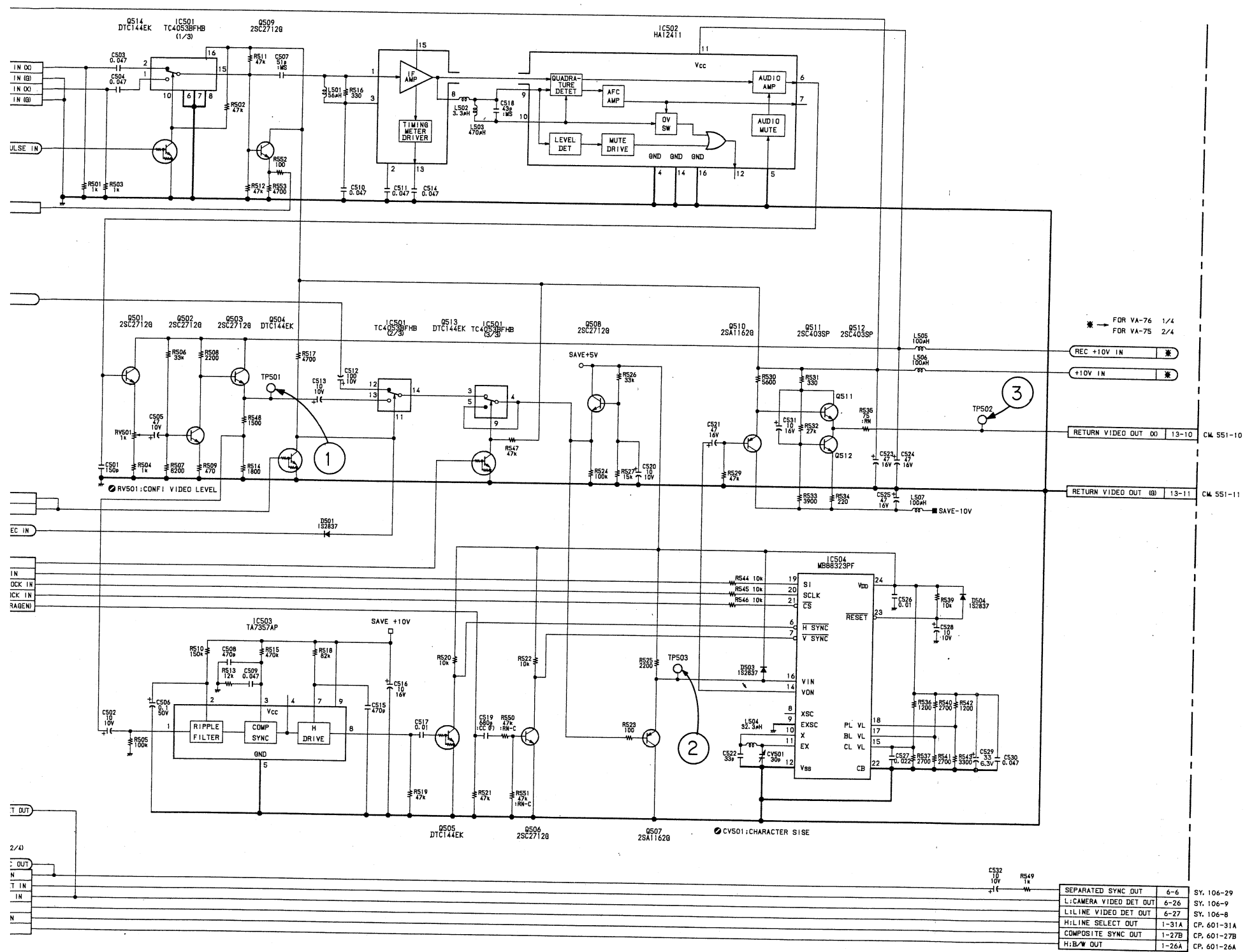


⑦ TP405
PB
H; 20 μ sec/DIV
V; 0.02V/DIV



VA - 76 (3/4) : VIDEO CONF, CHARACTER
DC - DC CONVERTER, REGULATOR



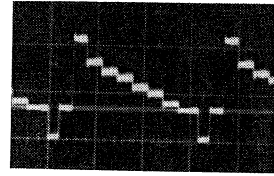


VA - 76 (3/4)
1-629-231-11,12,13,14,15
VO-8800P

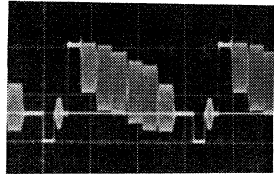
NOTE:

The Δ -marked components are critical to safety.
Replace only with same components as specified.

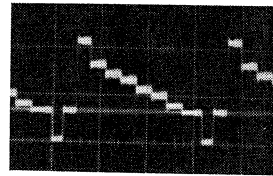
① TP501
REC
H; 20 μ sec/DIV
V; 1V/DIV



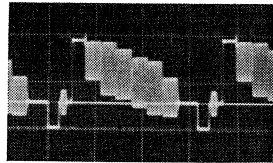
② TP503
PB
H; 20 μ sec/DIV
V; 1V/DIV



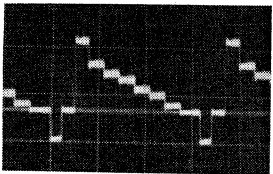
TP503
REC
H; 20 μ sec/DIV
V; 1V/DIV



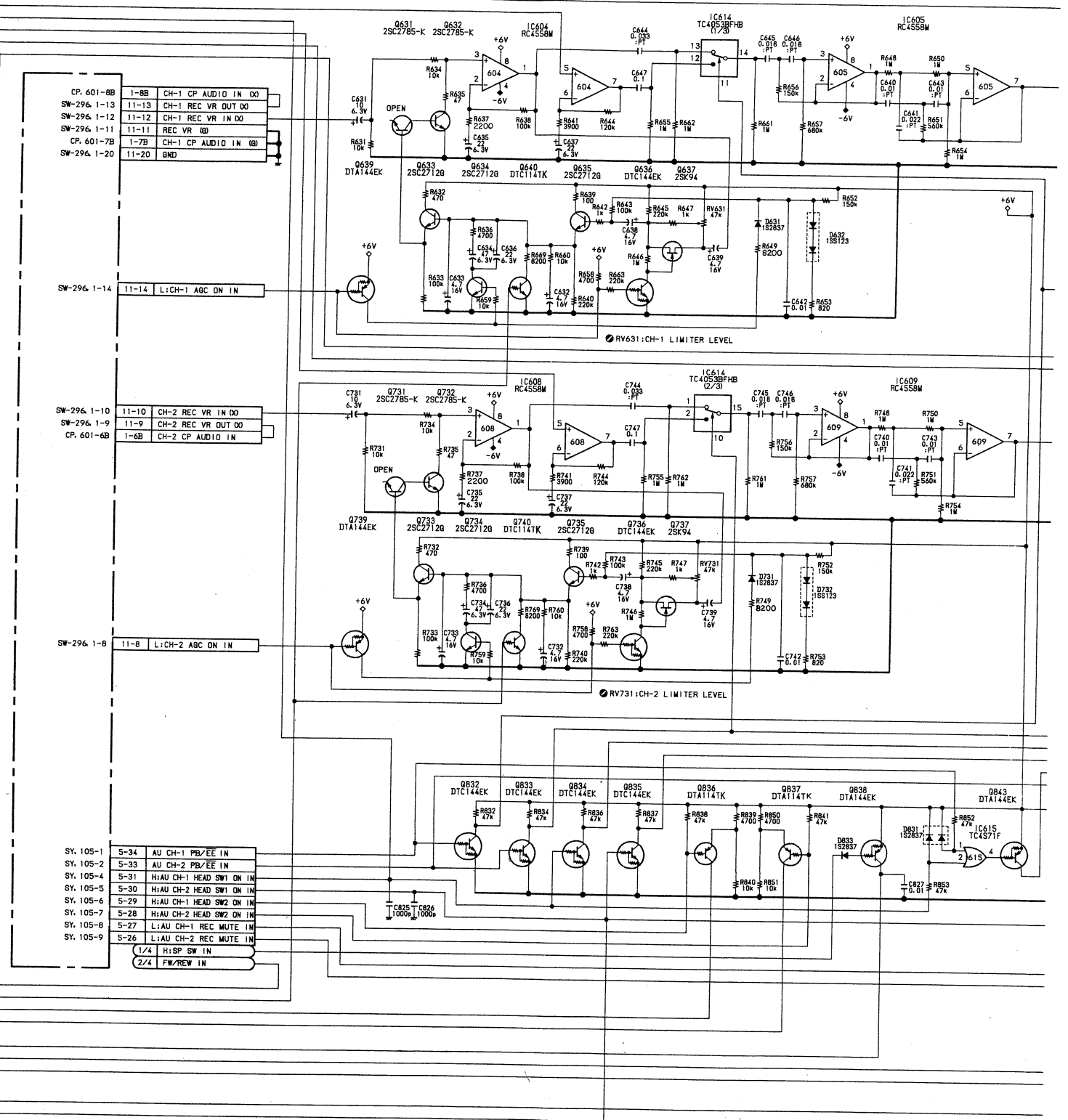
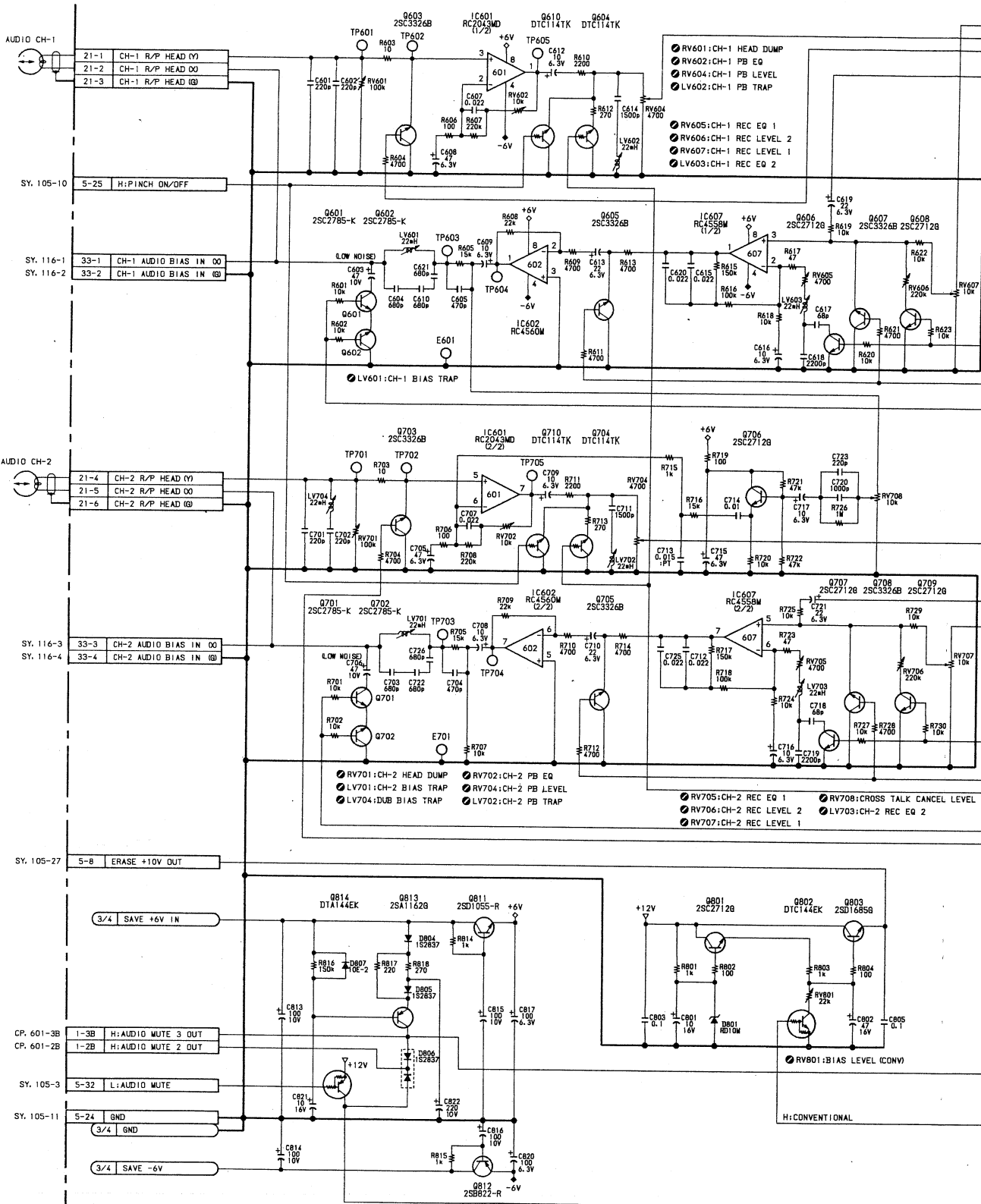
③ TP502
PB
H; 20 μ sec/DIV
V; 1V/DIV

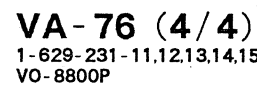


TP502
REC
H; 20 μ sec/DIV
V; 1V/DIV



VA - 76 (4/4) : AUDIO REC/PB AMPLIFIER, DOLBY, PILOT TONE





VA - 76 : Y/C MIX, Y MODULATOR/DEMODULATOR, C RF PB, VIDEO OUTPUT

REC/PB AMPLIFIER, DOLBY, PILOT TONE

DC - DC CONVERTER, REGULATOR

VA-76 (1-629-231-11, 12, 13, 14, 15)

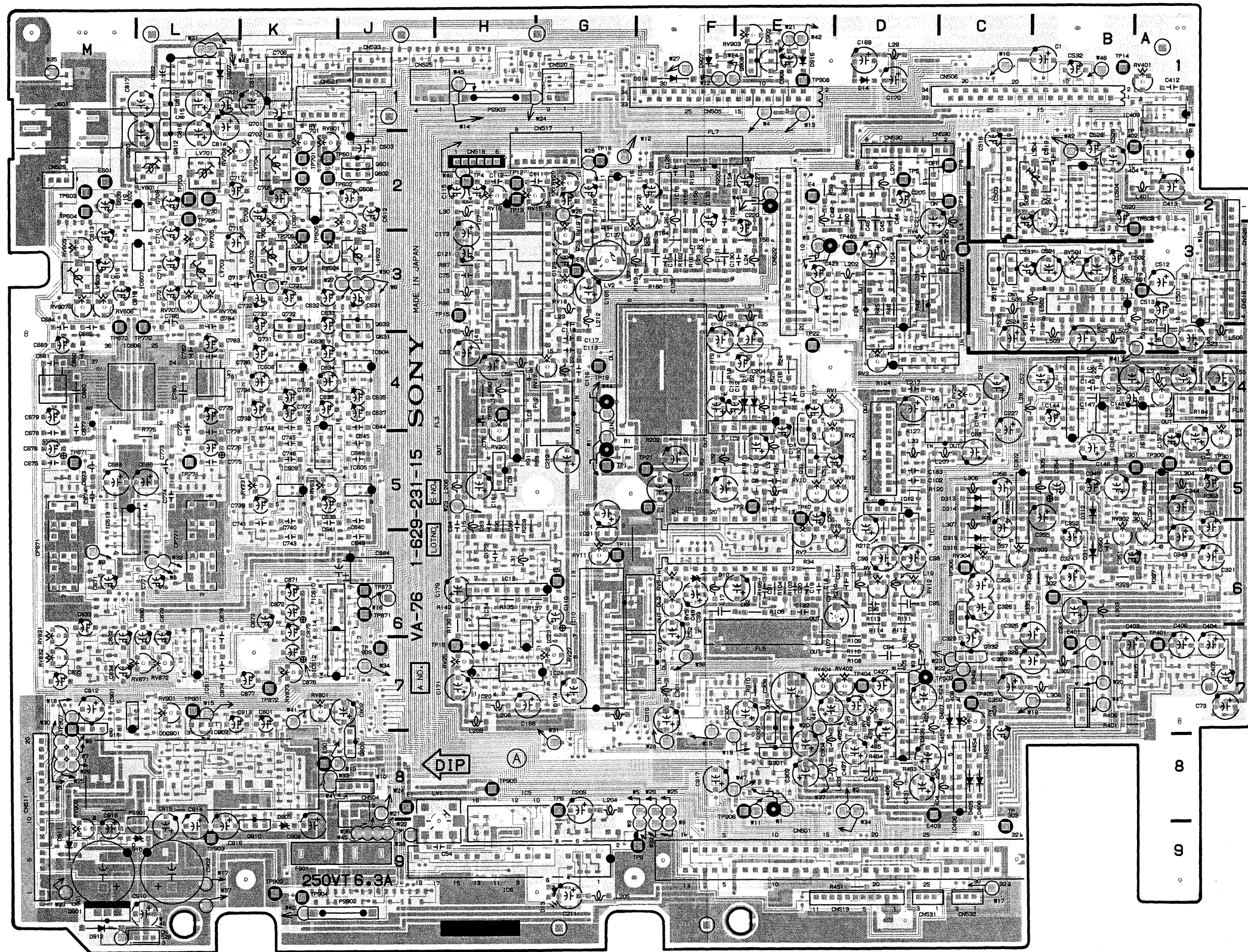
| | | | | | | | | | | | | | |
|--------|-------|-------|-------|-------|-------|------|-------|------|-------|-------|-------|----------------------|-------|
| CN1 | A-8 C | D804 | M-1 S | IC403 | A-1 C | Q47 | H-6 S | Q507 | B-2 S | Q901 | M-9 S | RV872 | L-7 C |
| CN501 | E-9 C | D805 | L-1 S | IC404 | A-2 C | Q48 | G-2 S | Q508 | A-3 S | Q902 | K-9 S | RV873 | K-7 C |
| CN504 | J-8 C | D806 | L-1 S | IC405 | D-7 C | Q49 | E-3 S | Q509 | A-3 S | Q903 | J-9 S | RV901 | L-7 C |
| CN505 | F-1 C | D807 | L-1 C | IC406 | C-8 C | Q50 | F-3 S | Q510 | B-3 S | Q904 | J-9 S | RV902 | M-8 C |
| CN506 | C-1 C | D831 | C-1 S | IC501 | A-3 C | Q51 | F-2 S | Q511 | C-3 C | Q905 | J-9 C | RV903 | E-1 C |
| CN513 | D-9 C | D832 | M-7 S | IC502 | B-3 C | Q52 | G-2 S | Q512 | C-3 C | Q907 | F-1 C | | |
| CN514 | H-1 C | D833 | H-1 S | IC503 | C-2 C | Q53 | G-3 C | Q513 | A-3 S | Q908 | E-1 S | S1 | D-2 C |
| CN517 | G-1 C | D835 | G-1 S | IC504 | B-2 C | Q54 | G-3 S | Q514 | A-2 S | Q909 | L-8 S | | |
| CN518 | H-2 C | D871 | K-6 S | IC601 | K-2 C | Q55 | B-4 S | Q601 | J-2 C | Q910 | K-9 C | TP1 | G-5 C |
| CN519 | A-3 C | D901 | J-9 S | IC602 | M-2 C | Q56 | B-5 S | Q602 | J-2 C | Q911 | M-7 C | TP2 | E-5 C |
| CN520 | G-1 C | D902 | L-8 S | IC604 | J-4 C | Q57 | A-5 S | Q603 | K-2 S | Q912 | K-8 S | TP3 | D-2 C |
| CN521 | K-1 C | D903 | L-8 S | IC605 | J-5 C | Q58 | A-4 S | Q604 | J-3 S | Q913 | M-8 S | TP4 | H-2 C |
| CN525 | J-1 C | D904 | K-8 S | IC606 | M-4 C | Q59 | A-4 S | Q605 | M-3 S | Q914 | K-8 S | TP5 | D-2 C |
| CN526 | A-3 C | D905 | K-8 C | IC607 | L-3 C | Q60 | H-7 S | Q606 | M-3 S | Q915 | K-8 S | TP6 | G-8 C |
| CN527 | B-7 C | D907 | F-1 C | IC608 | K-4 C | Q61 | H-7 S | Q607 | L-3 S | Q916 | L-8 S | TP8 | C-2 C |
| CN528 | L-9 C | D908 | M-7 S | IC609 | K-5 C | Q62 | B-5 S | Q608 | M-3 S | | | TP9 | G-9 C |
| CN530 | D-2 C | D909 | K-8 S | IC610 | K-6 C | Q201 | E-4 S | Q610 | K-3 S | RV1 | E-4 S | TP10 | H-4 C |
| CN531 | D-9 C | D910 | M-9 C | IC611 | L-7 C | Q204 | B-1 S | Q631 | J-4 C | RV2 | D-5 C | TP11 | G-6 C |
| CN532 | C-9 C | D911 | M-9 C | IC612 | K-7 C | Q205 | B-1 S | Q632 | J-3 C | RV3 | D-4 C | TP12 | H-2 C |
| CN533 | J-1 C | D912 | M-9 C | IC613 | M-5 C | Q206 | G-6 S | Q633 | K-4 S | RV4 | D-3 S | TP13 | H-2 C |
| CN561 | B-8 C | D913 | L-8 S | IC614 | K-4 C | Q207 | E-6 S | Q634 | K-4 S | RV5 | F-6 S | TP14 | B-1 C |
| CN562 | B-8 C | D914 | F-1 C | IC615 | G-1 S | Q208 | D-4 S | Q635 | K-4 S | RV6 | F-6 S | TP15 | H-3 C |
| CN590 | C-2 S | D915 | M-9 S | IC616 | G-1 S | Q209 | D-4 S | Q636 | K-5 S | RV7 | E-6 S | TP16 | H-7 C |
| | | D916 | E-1 C | IC901 | M-7 C | Q210 | D-4 S | Q637 | K-5 S | RV8 | D-6 S | TP17 | E-5 C |
| CP671 | M-6 C | | | IC902 | E-1 C | Q211 | C-4 S | Q639 | K-4 S | RV9 | D-5 S | TP18 | G-2 C |
| CP771 | L-6 C | E1 | J-8 C | IC903 | L-7 C | Q212 | C-5 S | Q640 | K-4 S | RV10 | E-5 S | TP19 | G-4 C |
| | | E2 | F-5 C | | | Q213 | D-6 S | Q671 | M-6 S | RV11 | G-6 S | TP21 | F-5 C |
| CV1 | E-6 C | E3 | C-3 C | J601 | M-1 C | Q214 | D-6 S | Q672 | M-6 S | RV12 | D-6 S | TP22 | E-4 C |
| CV502 | B-2 C | E4 | E-2 C | | | Q301 | E-8 C | Q701 | K-2 C | RV13 | D-6 C | TP300 | A-5 C |
| | | E5 | G-6 C | LV1 | J-8 C | Q302 | E-8 S | Q702 | K-2 C | RV15 | H-2 C | TP301 | A-5 C |
| DDC901 | L-7 C | E6 | C-3 C | LV2 | G-3 C | Q303 | E-7 C | Q703 | K-2 S | RV16 | H-2 S | TP302 | B-6 C |
| | | E301 | A-5 C | LV601 | L-2 C | Q304 | E-7 S | Q704 | K-3 S | RV17 | G-4 S | TP303 | C-8 C |
| DL1 | G-4 C | E401 | B-7 C | LV602 | J-3 C | Q305 | F-7 S | Q705 | L-2 S | RV18 | G-3 S | TP306 | C-6 C |
| DL2 | F-6 C | E403 | D-9 C | LV603 | M-3 C | Q306 | F-7 S | Q706 | K-2 S | RV19 | G-3 S | TP401 | A-7 C |
| DL3 | F-7 C | E601 | M-2 C | LV701 | L-2 C | Q307 | E-7 C | Q707 | L-3 S | RV20 | G-2 S | TP402 | B-2 C |
| DL4 | D-5 C | E701 | L-2 C | LV702 | K-3 C | Q308 | F-7 S | Q708 | L-3 S | RV21 | F-2 S | TP403 | D-3 C |
| | | E901 | K-8 C | LV703 | L-3 C | Q309 | F-7 S | Q709 | L-3 S | RV22 | F-3 S | TP404 | D-7 C |
| D1 | E-4 C | | | LV704 | K-2 C | Q310 | E-7 S | Q710 | K-3 S | RV23 | A-4 S | TP405 | C-7 C |
| D2 | E-4 C | FL1 | D-4 C | | | Q311 | E-8 S | Q731 | K-4 C | RV24 | A-5 C | TP501 | A-3 C |
| D3 | E-5 S | FL2 | H-4 C | Q1 | G-4 S | Q321 | A-6 S | Q732 | K-3 C | RV25 | H-7 C | TP502 | C-7 C |
| D8 | F-7 S | FL3 | H-4 C | Q3 | E-5 S | Q322 | A-6 S | Q733 | K-3 S | RV26 | C-4 S | TP503 | A-2 C |
| D9 | F-7 S | FL4 | D-3 C | Q4 | E-5 S | Q323 | A-6 S | Q734 | K-4 S | RV27 | G-7 S | TP601 | J-2 C |
| D10 | F-6 C | FL5 | E-7 C | Q5 | E-4 S | Q324 | A-6 S | Q735 | L-4 S | RV30 | H-5 S | TP602 | J-2 C |
| D11 | E-5 S | FL6 | A-4 C | Q6 | E-4 S | Q325 | B-6 S | Q736 | L-5 S | RV301 | A-5 S | TP603 | M-2 C |
| D12 | E-5 S | FL7 | F-2 C | Q7 | E-4 S | Q326 | B-6 S | Q737 | K-5 S | RV302 | B-5 S | TP604 | M-2 C |
| D13 | G-9 C | FL8 | C-4 C | Q8 | E-5 S | Q327 | B-6 S | Q739 | L-4 S | RV303 | B-6 S | TP605 | K-3 C |
| D14 | D-1 C | | | Q9 | E-5 C | Q328 | B-6 S | Q740 | L-4 S | RV304 | C-6 S | TP671 | M-5 C |
| D301 | F-8 S | IC1 | F-5 C | Q10 | E-5 S | Q329 | C-7 S | Q771 | L-6 S | RV401 | A-1 S | TP672 | M-4 C |
| D303 | F-7 S | IC2 | E-5 C | Q11 | D-4 S | Q330 | C-6 S | Q772 | M-6 S | RV402 | D-7 S | TP701 | K-2 C |
| D305 | F-7 S | IC3 | D-4 C | Q12 | D-4 S | Q331 | C-7 S | Q801 | K-7 S | RV403 | C-7 S | TP702 | K-2 C |
| D306 | E-8 S | IC4 | D-3 C | Q13 | C-4 S | Q332 | C-7 C | Q802 | K-8 S | RV404 | E-7 S | TP703 | L-2 C |
| D307 | E-8 S | IC5 | H-8 C | Q23 | D-2 S | Q333 | C-6 C | Q803 | J-8 C | RV405 | D-7 C | TP704 | L-2 C |
| D311 | B-6 C | IC6 | H-9 C | Q24 | D-3 S | Q341 | A-5 S | Q811 | L-1 C | RV501 | B-3 C | TP705 | K-3 C |
| D312 | B-5 C | IC7 | H-2 C | Q26 | D-2 S | Q342 | B-5 S | Q812 | L-2 C | RV601 | K-1 C | TP771 | L-5 C |
| D313 | C-5 C | IC8 | H-4 C | Q27 | F-6 S | Q343 | B-6 S | Q813 | L-1 S | RV602 | J-2 S | TP772 | L-4 C |
| D314 | C-5 C | IC9 | H-5 C | Q28 | D-5 S | Q344 | B-5 S | Q814 | L-1 S | RV604 | K-3 S | TP871 | J-6 C |
| D315 | C-6 C | IC10 | C-6 C | Q29 | E-6 S | Q345 | B-5 S | Q832 | H-1 S | RV605 | M-3 S | TP872 | K-7 C |
| D316 | C-6 C | IC11 | D-6 C | Q30 | E-6 S | Q346 | C-6 S | Q833 | H-1 S | RV606 | M-3 S | TP873 | J-6 C |
| D401 | B-7 S | IC12 | D-5 C | Q31 | E-5 C | Q401 | A-7 S | Q834 | J-1 S | RV607 | M-3 S | TP901 | L-7 C |
| D402 | D-3 S | IC13 | H-6 C | Q32 | E-5 S | Q402 | A-7 S | Q835 | K-1 S | RV631 | K-5 S | TP902 | K-9 C |
| D403 | D-3 S | IC14 | H-6 C | Q33 | G-9 S | Q403 | A-7 S | Q836 | J-1 S | RV651 | A-8 S | TP903 | L-9 C |
| D405 | C-8 C | IC15 | F-2 C | Q34 | H-5 S | Q404 | B-1 S | Q837 | K-1 S | RV701 | K-2 S | TP904 | K-9 C |
| D406 | C-8 C | IC16 | F-2 C | Q35 | G-7 S | Q406 | D-7 S | Q838 | H-1 S | RV702 | K-3 S | TP905 | H-8 C |
| D407 | C-7 C | IC17 | B-4 C | Q36 | E-6 S | Q407 | D-8 S | Q839 | K-1 S | RV704 | K-3 S | TP906 | F-8 C |
| D408 | C-7 C | IC18 | B-5 C | Q37 | E-7 S | Q408 | D-7 S | Q840 | K-1 S | RV705 | L-3 S | TP907 | M-7 C |
| D501 | A-3 S | IC19 | A-5 C | Q38 | D-7 S | Q409 | D-8 S | Q841 | M-7 S | RV706 | L-3 S | TP908 | E-1 C |
| D503 | B-3 S | IC20 | H-7 C | Q39 | D-7 S | Q410 | D-8 S | Q842 | M-7 S | RV707 | L-3 S | TP909 | J-7 C |
| D504 | B-2 S | IC21 | C-6 C | Q41 | E-6 S | Q501 | B-3 S | Q843 | H-1 S | RV708 | L-2 S | | |
| D631 | K-5 S | IC22 | B-4 C | Q42 | D-5 S | Q502 | B-3 S | Q844 | H-1 S | RV731 | K-5 S | ** C: COMPONENT SIDE | |
| D632 | K-5 S | IC23 | G-7 C | Q43 | H-6 S | Q503 | A-3 S | Q872 | L-7 S | RV801 | K-7 S | ** S: SOLDERING SIDE | |
| D731 | K-5 S | IC24 | G-7 C | Q44 | G-6 S | Q504 | A-3 S | Q873 | K-7 S | RV831 | M-7 S | | |
| D732 | L-5 S | IC301 | A-5 C | Q45 | H-6 S | Q505 | C-2 S | Q874 | K-7 S | RV832 | M-7 S | | |
| D801 | K-8 S | IC302 | C-5 C | Q46 | H-6 S | Q506 | B-2 S | Q875 | J-7 S | RV871 | M-7 S | | |

L-7 C
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COMPONENT SIDE
SOLDERING SIDE



VA-76 - COMPONENT SIDE -
1-629-231-11, 12, 13, 14, 15
VO-8800P

VA - 76 : Y/C MIX, Y MODULATOR/DEMODULATOR, C RF PB, VIDEO OUTPUT

REC/PB AMPLIFIER, DOLBY, PILOT TONE

DC - DC CONVERTER, REGULATOR

VA-76 (1-629-231-11, 12, 13, 14, 15)

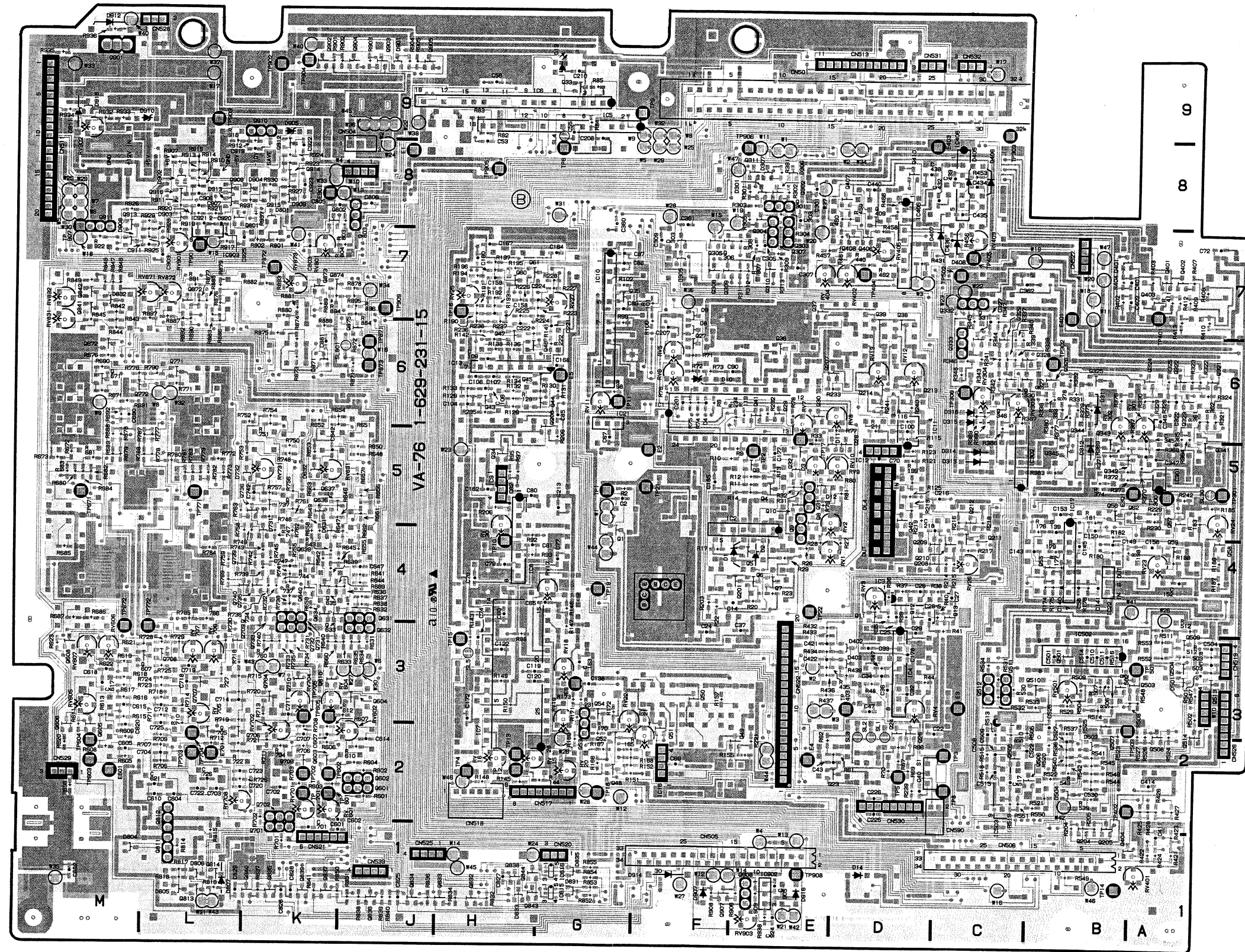
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|--------|-------|-------|-------|-------|-------|------|-------|------|-------|-------|-------|----------------------|-------|
| CN1 | A-8 C | D804 | M-1 S | IC403 | A-1 C | Q47 | H-6 S | Q507 | B-2 S | Q901 | M-9 S | RV872 | L-7 C |
| CN501 | E-9 C | D805 | L-1 S | IC404 | A-2 C | Q48 | G-2 S | Q508 | A-3 S | Q902 | K-9 S | RV873 | K-7 C |
| CN504 | J-8 C | D806 | L-1 S | IC405 | D-7 C | Q49 | E-3 S | Q509 | A-3 S | Q903 | J-9 S | RV901 | L-7 C |
| CN505 | F-1 C | D807 | L-1 C | IC406 | C-8 C | Q50 | F-3 S | Q510 | B-3 S | Q904 | J-9 S | RV902 | M-8 C |
| CN506 | C-1 C | D831 | G-1 S | IC501 | A-3 C | Q51 | F-2 S | Q511 | C-3 C | Q905 | J-9 C | RV903 | E-1 C |
| CN513 | D-9 C | D832 | M-7 S | IC502 | B-3 C | Q52 | G-2 S | Q512 | C-3 C | Q907 | F-1 C | | |
| CN514 | H-1 C | D833 | H-1 S | IC503 | C-2 C | Q53 | G-3 C | Q513 | A-3 S | Q908 | E-1 S | S1 | D-2 C |
| CN517 | G-1 C | D835 | G-1 S | IC504 | B-2 C | Q54 | G-3 S | Q514 | A-2 S | Q909 | L-8 S | | |
| CN518 | H-2 C | D871 | K-6 S | IC601 | K-2 C | Q55 | B-4 S | Q601 | J-2 C | Q910 | K-9 C | TP1 | G-5 C |
| CN519 | A-3 C | D901 | J-9 S | IC602 | M-2 C | Q56 | B-5 S | Q602 | J-2 C | Q911 | M-7 C | TP2 | E-5 C |
| CN520 | G-1 C | D902 | L-8 S | IC604 | J-4 C | Q57 | A-5 S | Q603 | K-2 S | Q912 | K-8 S | TP3 | D-2 C |
| CN521 | K-1 C | D903 | L-8 S | IC605 | J-5 C | Q58 | A-4 S | Q604 | J-3 S | Q913 | M-8 S | TP4 | H-2 C |
| CN525 | J-1 C | D904 | K-8 S | IC606 | M-4 C | Q59 | A-4 S | Q605 | M-3 S | Q914 | K-8 S | TP5 | D-2 C |
| CN526 | A-3 C | D905 | K-8 C | IC607 | L-3 C | Q60 | H-7 S | Q606 | M-3 S | Q915 | K-8 S | TP6 | G-8 C |
| CN527 | B-7 C | D907 | F-1 C | IC608 | K-4 C | Q61 | H-7 S | Q607 | L-3 S | Q916 | L-8 S | TP8 | C-2 C |
| CN528 | L-9 C | D908 | M-7 S | IC609 | K-5 C | Q62 | B-5 S | Q608 | M-3 S | | | TP9 | G-9 C |
| CN530 | D-2 C | D909 | K-8 S | IC610 | K-6 C | Q201 | E-4 S | Q610 | K-3 S | RV1 | E-4 S | TP10 | H-4 C |
| CN531 | D-9 C | D910 | M-9 C | IC611 | L-7 C | Q204 | B-1 S | Q631 | J-4 C | RV2 | D-5 C | TP11 | G-6 C |
| CN532 | C-9 C | D911 | M-9 C | IC612 | K-7 C | Q205 | B-1 S | Q632 | J-3 C | RV3 | D-4 C | TP12 | H-2 C |
| CN533 | J-1 C | D912 | M-9 C | IC613 | M-5 C | Q206 | G-6 S | Q633 | K-4 S | RV4 | D-3 S | TP13 | H-2 C |
| CN561 | B-8 C | D913 | L-8 S | IC614 | K-4 C | Q207 | E-6 S | Q634 | K-4 S | RV5 | F-6 S | TP14 | B-1 C |
| CN562 | B-8 C | D914 | F-1 C | IC615 | G-1 S | Q208 | D-4 S | Q635 | K-4 S | RV6 | F-6 S | TP15 | H-3 C |
| CN590 | C-2 S | D915 | M-9 S | IC616 | G-1 S | Q209 | D-4 S | Q636 | K-5 S | RV7 | E-6 S | TP16 | H-7 C |
| | | D916 | E-1 C | IC901 | M-7 C | Q210 | D-4 S | Q637 | K-5 S | RV8 | D-6 S | TP17 | E-5 C |
| CP671 | M-6 C | | | IC902 | E-1 C | Q211 | C-4 S | Q639 | K-4 S | RV9 | D-5 S | TP18 | G-2 C |
| CP771 | L-6 C | E1 | J-8 C | IC903 | L-7 C | Q212 | C-5 S | Q640 | K-4 S | RV10 | E-5 S | TP19 | G-4 C |
| | | E2 | F-5 C | | | Q213 | D-6 S | Q671 | M-6 S | RV11 | G-6 S | TP21 | F-5 C |
| CV1 | E-6 C | E3 | C-3 C | J601 | M-1 C | Q214 | D-6 S | Q672 | M-6 S | RV12 | D-6 S | TP22 | E-4 C |
| CV502 | B-2 C | E4 | E-2 C | | | Q301 | E-8 C | Q701 | K-2 C | RV13 | D-6 C | TP300 | A-5 C |
| | | E5 | G-6 C | LV1 | J-8 C | Q302 | E-8 S | Q702 | K-2 C | RV15 | H-2 C | TP301 | A-5 C |
| DDC901 | L-7 C | E6 | G-3 C | LV2 | G-3 C | Q303 | E-7 C | Q703 | K-2 S | RV16 | H-2 S | TP302 | B-6 C |
| | | E301 | A-5 C | LV601 | L-2 C | Q304 | E-7 S | Q704 | K-3 S | RV17 | G-4 S | TP303 | C-8 C |
| DL1 | G-4 C | E401 | B-7 C | LV602 | J-3 C | Q305 | F-7 S | Q705 | L-2 S | RV18 | G-3 S | TP306 | C-6 C |
| DL2 | F-6 C | E403 | D-9 C | LV603 | M-3 C | Q306 | F-7 S | Q706 | K-2 S | RV19 | G-3 S | TP401 | A-7 C |
| DL3 | F-7 C | E601 | M-2 C | LV701 | L-2 C | Q307 | E-7 C | Q707 | L-3 S | RV20 | G-2 S | TP402 | B-2 C |
| DL4 | D-5 C | E701 | L-2 C | LV702 | K-3 C | Q308 | F-7 S | Q708 | L-3 S | RV21 | F-2 S | TP403 | D-3 C |
| | | E901 | K-8 C | LV703 | L-3 C | Q309 | F-7 S | Q709 | L-3 S | RV22 | F-3 S | TP404 | D-7 C |
| | | | | LV704 | K-2 C | Q310 | E-7 S | Q710 | K-3 S | RV23 | A-4 S | TP405 | C-7 C |
| D1 | E-4 C | | | | | Q311 | E-8 S | Q731 | K-4 C | RV24 | A-5 C | TP501 | A-3 C |
| D2 | E-4 C | FL1 | D-4 C | Q1 | G-4 S | Q321 | A-6 S | Q732 | K-3 C | RV25 | H-7 C | TP502 | C-7 C |
| D3 | E-5 S | FL2 | H-4 C | Q3 | E-5 S | Q322 | A-6 S | Q733 | K-3 S | RV26 | C-4 S | TP503 | A-2 C |
| D8 | F-7 S | FL3 | H-4 C | Q4 | E-5 S | Q323 | A-6 S | Q734 | K-4 S | RV27 | G-7 S | TP601 | J-2 C |
| D9 | F-7 S | FL4 | D-3 C | Q5 | E-4 S | Q324 | A-6 S | Q735 | L-4 S | RV30 | H-5 S | TP602 | J-2 C |
| D10 | F-6 C | FL5 | E-7 C | Q6 | E-4 S | Q325 | B-6 S | Q736 | L-5 S | RV301 | A-5 S | TP603 | M-2 C |
| D11 | E-5 S | FL6 | A-4 C | Q7 | E-4 S | Q326 | B-6 S | Q737 | K-5 S | RV302 | B-5 S | TP604 | M-2 C |
| D12 | E-5 S | FL7 | F-2 C | Q8 | E-5 S | Q327 | B-6 S | Q739 | L-4 S | RV303 | B-6 S | TP605 | K-3 C |
| D13 | G-9 C | FL8 | C-4 C | Q9 | E-5 C | Q328 | B-6 S | Q740 | L-4 S | RV304 | C-6 S | TP671 | M-5 C |
| D14 | D-1 C | | | Q10 | E-5 S | Q329 | C-7 S | Q771 | L-6 S | RV401 | A-1 S | TP672 | M-4 C |
| D301 | F-8 S | IC1 | F-5 C | Q11 | D-4 S | Q330 | C-6 S | Q772 | M-6 S | RV402 | D-7 S | TP701 | K-2 C |
| D303 | F-7 S | IC2 | E-5 C | Q12 | D-4 S | Q331 | C-7 S | Q801 | K-7 S | RV403 | C-7 S | TP702 | K-2 C |
| D305 | F-7 S | IC3 | D-4 C | Q13 | C-4 S | Q332 | C-7 C | Q802 | K-8 S | RV404 | E-7 S | TP703 | L-2 C |
| D306 | E-8 S | IC4 | D-3 C | Q23 | D-2 S | Q333 | C-6 C | Q803 | J-8 C | RV405 | D-7 C | TP704 | L-2 C |
| D307 | E-8 S | IC5 | H-8 C | Q24 | D-3 S | Q341 | A-5 S | Q811 | L-1 C | RV501 | B-3 C | TP705 | K-3 C |
| D311 | B-6 C | IC6 | H-9 C | Q26 | D-2 S | Q342 | B-5 S | Q812 | L-2 C | RV601 | K-1 C | TP771 | L-5 C |
| D312 | B-5 C | IC7 | H-2 C | Q27 | F-6 S | Q343 | B-6 S | Q813 | L-1 S | RV602 | J-2 S | TP772 | L-4 C |
| D313 | C-5 C | IC8 | H-4 C | Q28 | D-5 S | Q344 | B-5 S | Q814 | L-1 S | RV604 | K-3 S | TP871 | J-6 C |
| D314 | C-5 C | IC9 | H-5 C | Q29 | E-6 S | Q345 | B-5 S | Q832 | H-1 S | RV605 | M-3 S | TP872 | K-7 C |
| D315 | C-6 C | IC10 | G-6 C | Q30 | E-6 S | Q346 | C-6 S | Q833 | H-1 S | RV606 | M-3 S | TP873 | J-6 C |
| D316 | C-6 C | IC11 | D-6 C | Q31 | E-5 C | Q401 | A-7 S | Q834 | J-1 S | RV607 | M-3 S | TP901 | L-7 C |
| D401 | B-7 S | IC12 | D-5 C | Q32 | E-5 S | Q402 | A-7 S | Q835 | K-1 S | RV631 | K-5 S | TP902 | K-9 C |
| D402 | D-3 S | IC13 | H-6 C | Q33 | G-9 S | Q403 | A-7 S | Q836 | J-1 S | RV651 | A-8 S | TP903 | L-9 C |
| D403 | D-3 S | IC14 | H-6 C | Q34 | H-5 S | Q404 | B-1 S | Q837 | K-1 S | RV701 | K-2 S | TP904 | K-9 C |
| D405 | C-8 C | IC15 | F-2 C | Q35 | G-7 S | Q406 | D-7 S | Q838 | H-1 S | RV702 | K-3 S | TP905 | H-8 C |
| D406 | C-8 C | IC16 | F-2 C | Q36 | E-6 S | Q407 | D-8 S | Q839 | K-1 S | RV704 | K-3 S | TP906 | F-8 C |
| D407 | C-7 C | IC17 | B-4 C | Q37 | E-7 S | Q408 | D-7 S | Q840 | K-1 S | RV705 | L-3 S | TP907 | M-7 C |
| D408 | C-7 C | IC18 | B-5 C | Q38 | D-7 S | Q409 | D-8 S | Q841 | M-7 S | RV706 | L-3 S | TP908 | E-1 C |
| D501 | A-3 S | IC19 | A-5 C | Q39 | D-7 S | Q410 | D-8 S | Q842 | M-7 S | RV707 | L-3 S | TP909 | J-7 C |
| D503 | B-3 S | IC20 | H-7 C | Q41 | E-6 S | Q501 | B-3 S | Q843 | H-1 S | RV708 | L-2 S | | |
| D504 | B-2 S | IC21 | G-6 C | Q42 | D-5 S | Q502 | B-3 S | Q844 | H-1 S | RV731 | K-5 S | ** C; COMPONENT SIDE | |
| D631 | K-5 S | IC22 | B-4 C | Q43 | H-6 S | Q503 | A-3 S | Q872 | L-7 S | RV801 | K-7 S | ** S; SOLDERING SIDE | |
| D632 | K-5 S | IC23 | G-7 C | Q44 | G-6 S | Q504 | A-3 S | Q873 | K-7 S | RV831 | M-7 S | | |
| D731 | K-5 S | IC24 | G-7 C | Q45 | H-6 S | Q505 | C-2 S | Q874 | K-7 S | RV832 | M-7 S | | |
| D732 | L-5 S | IC301 | A-5 C | Q46 | H-6 S | Q506 | B-2 S | Q875 | J-7 S | RV871 | M-7 S | | |
| D801 | K-8 S | IC302 | C-5 C | | | | | | | | | | |

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RV902 M-8 C
RV903 E-1 C

S1 D-2 C

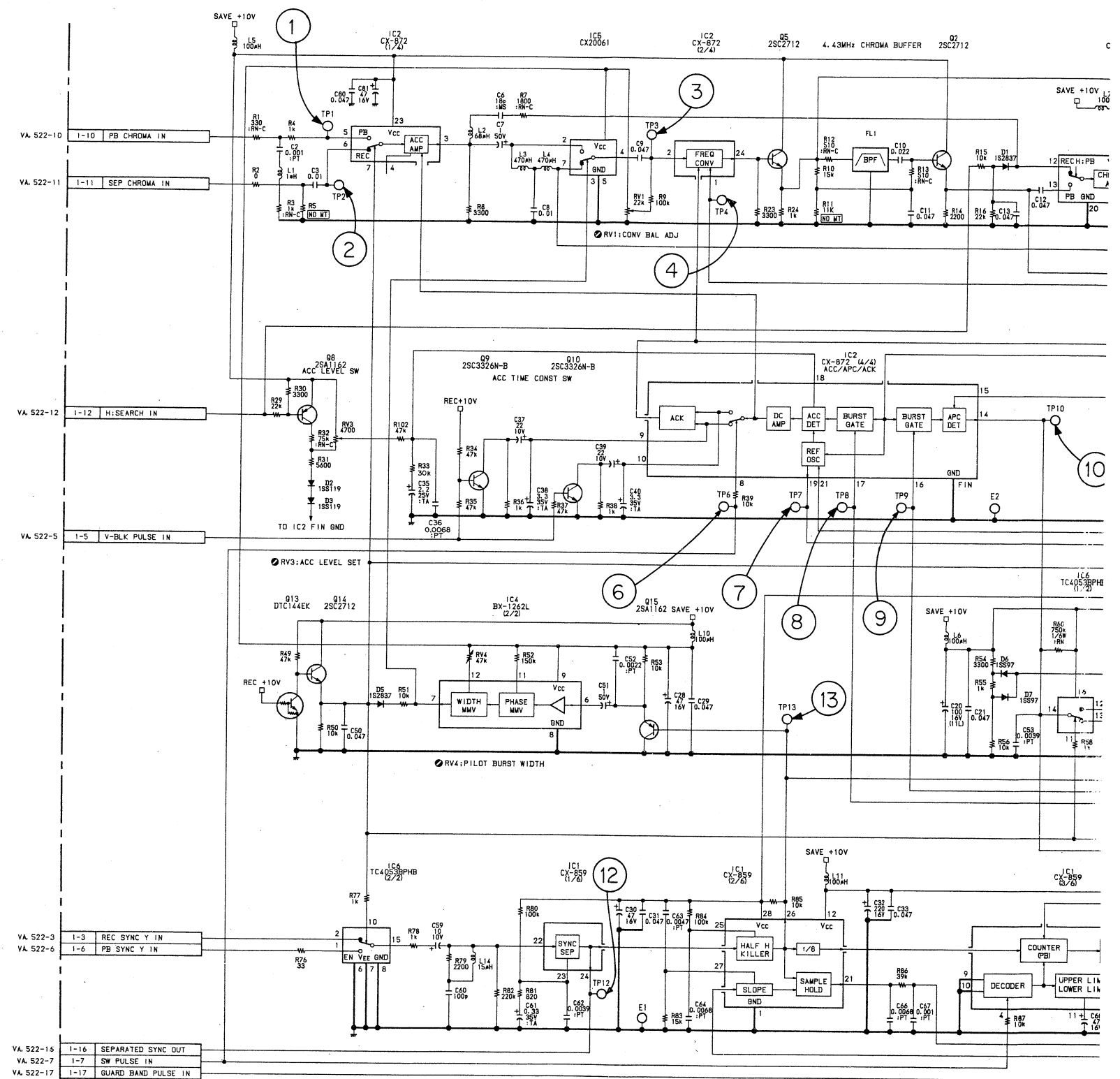
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TP908 B-1 C
TP909 J-7 C

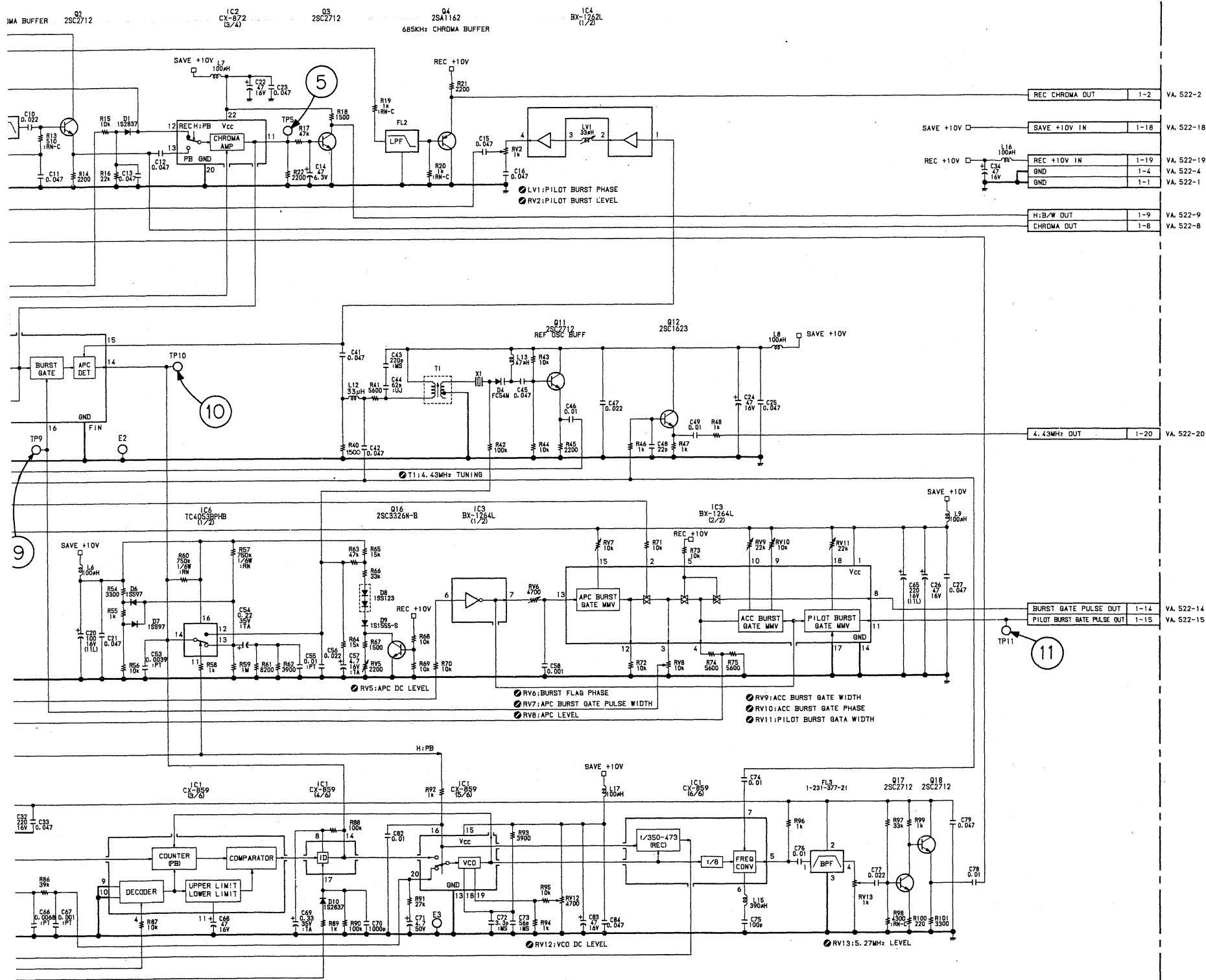
*-C: COMPONENT SIDE
*-S: SOLDERING SIDE



VA-76 - SOLDERING SIDE -
1-629-231-11, 12, 13, 14, 15
VO-8800P

CR - 35 : CHROMA PROCESSOR





CR - 35 : CHROMA PROCESSOR

CR-35 (1-629-232-11, 12, 13)

CN1 C-4 C

D1 B-3 S
D2 D-3 C
D3 D-3 C
D4 A-1 C
D5 D-4 S
D6 A-3 C
D7 A-3 C
D8 A-3 S
D9 A-3 C
D10 D-1 S

E1 A-1 C
E2 D-4 C
E3 C-2 C

FL1 C-3 C
FL2 D-4 C
FL3 E-1 C

IC1 D-2 C
IC2 C-3 C
IC3 C-1 C
IC4 E-4 C
IC5 D-4 C
IC6 A-3 C

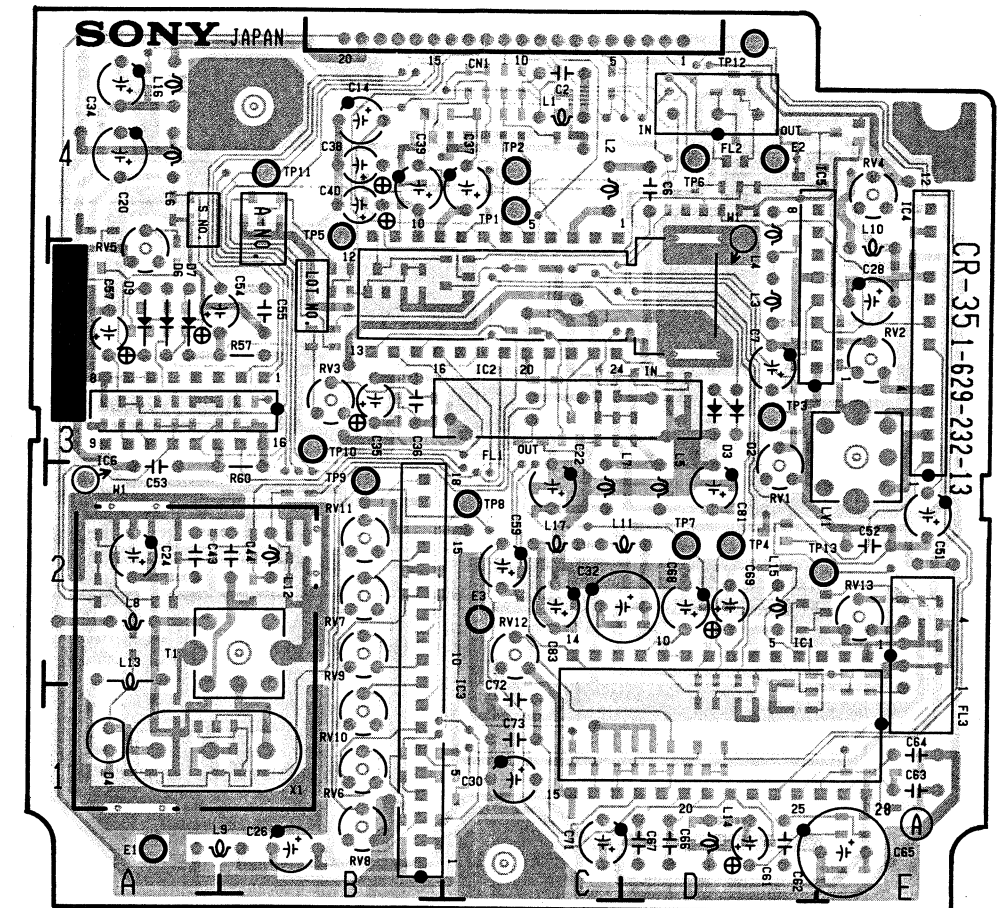
LV1 E-2 C

Q1 C-4 S
Q2 C-3 S
Q3 C-3 S
Q4 D-4 S
Q5 D-3 S
Q8 B-4 S
Q9 C-4 S
Q10 B-4 S
Q11 A-1 S
Q12 A-2 S
Q13 D-4 S
Q14 E-4 S
Q15 D-2 S
Q16 A-3 S
Q17 D-2 S
Q18 E-1 S

RV1 D-2 C
RV2 E-3 C
RV3 B-3 C
RV4 E-4 C
RV5 A-3 C
RV6 B-1 C
RV7 B-2 C
RV8 B-1 C
RV9 B-2 C
RV10 B-1 C
RV11 B-2 C
RV12 C-2 C
RV13 E-2 C

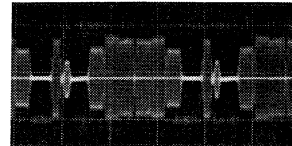
TP1 C-4 C
TP2 C-4 C
TP3 D-3 C
TP4 D-2 C
TP5 B-4 C
TP6 D-4 C
TP7 D-2 C
TP8 C-2 C
TP9 B-2 C
TP10 B-3 C
TP11 B-4 C
TP12 D-4 C
TP13 E-2 C

** C; COMPONENT SIDE
** S; SOLDERING SIDE

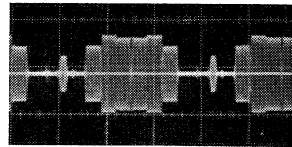


CR-35 - COMPONENT SIDE -
1-629-232-11, 12, 13
VO-8800P

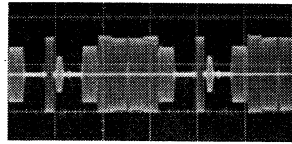
① TP1
PB
H; 20μsec/DIV
V; 0.1V/DIV



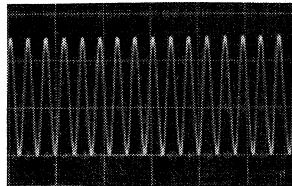
② TP2
EE
H; 20μsec/DIV
V; 0.1V/DIV



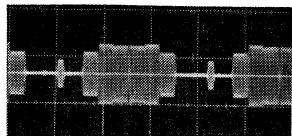
③ TP3
EE
H; 20μsec/DIV
V; 0.5V/DIV



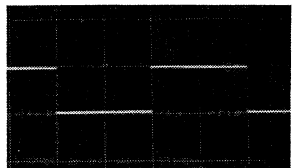
④ TP4
EE
H; 0.5μsec/DIV
V; 0.2V/DIV
5.35MHz



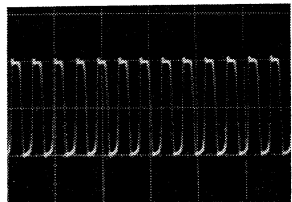
⑤ TP5
EE
H; 20μsec/DIV
V; 0.5V/DIV



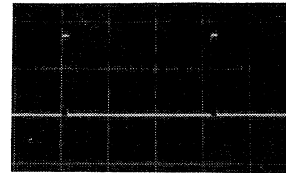
⑥ TP6
PB
H; 10msec/DIV
V; 5V/DIV



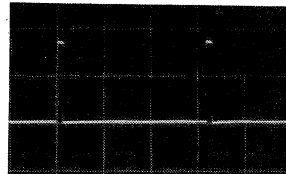
⑦ TP7
EE
H; 0.5μsec/DIV
V; 0.2V/DIV
4.43MHz



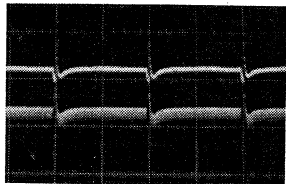
⑧ TP8
EE
H; 20μsec/DIV
V; 2V/DIV



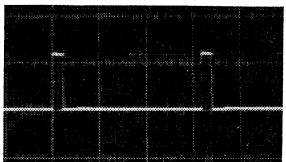
⑨ TP9
EE
H; 20μsec/DIV
V; 2V/DIV



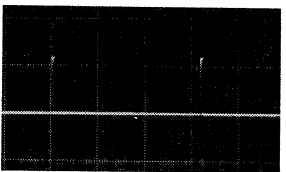
⑩ TP10
EE
H; 10msec/DIV
V; 0.05/DIV



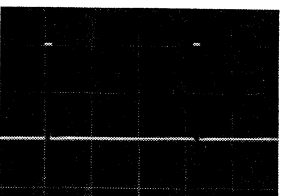
⑪ TP11
EE
H; 20μsec/DIV
V; 5V/DIV



⑫ TP12
EE
H; 20μsec/DIV
V; 5V/DIV



⑬ TP13
EE
H; 20μsec/DIV
V; 5V/DIV



CR - 35 : CHROMA PROCESSOR

CR-35 (1-629-232-11, 12, 13)

CN1 C-4 C

D1 B-3 S
D2 D-3 C
D3 D-3 C
D4 A-1 C
D5 D-4 S
D6 A-3 C
D7 A-3 C
D8 A-3 S
D9 A-3 C
D10 D-1 S

E1 A-1 C
E2 D-4 C
E3 C-2 C

FL1 C-3 C
FL2 D-4 C
FL3 E-1 C

IC1 D-2 C
IC2 C-3 C
IC3 C-1 C
IC4 B-4 C
IC5 D-4 C
IC6 A-3 C

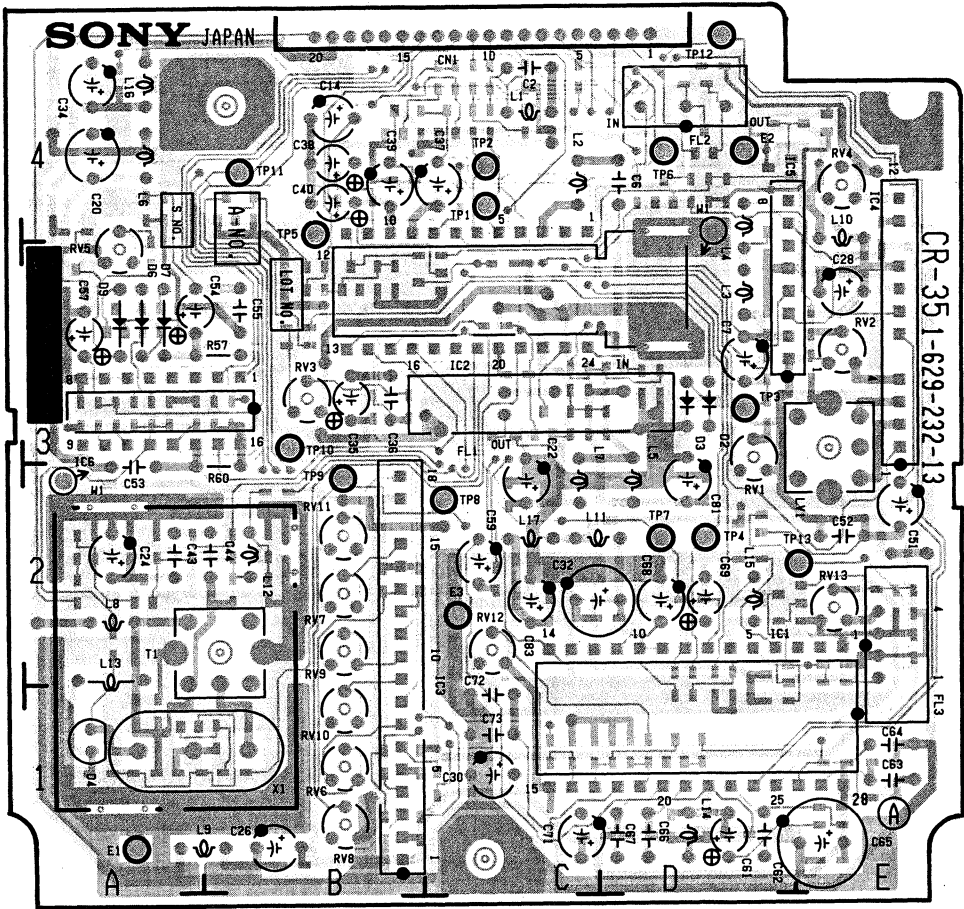
LV1 E-2 C

Q1 C-4 S
Q2 C-3 S
Q3 C-3 S
Q4 D-4 S
Q5 D-3 S
Q8 B-4 S
Q9 C-4 S
Q10 B-4 S
Q11 A-1 S
Q12 A-2 S
Q13 D-4 S
Q14 E-4 S
Q15 D-2 S
Q16 A-3 S
Q17 D-2 S
Q18 E-1 S

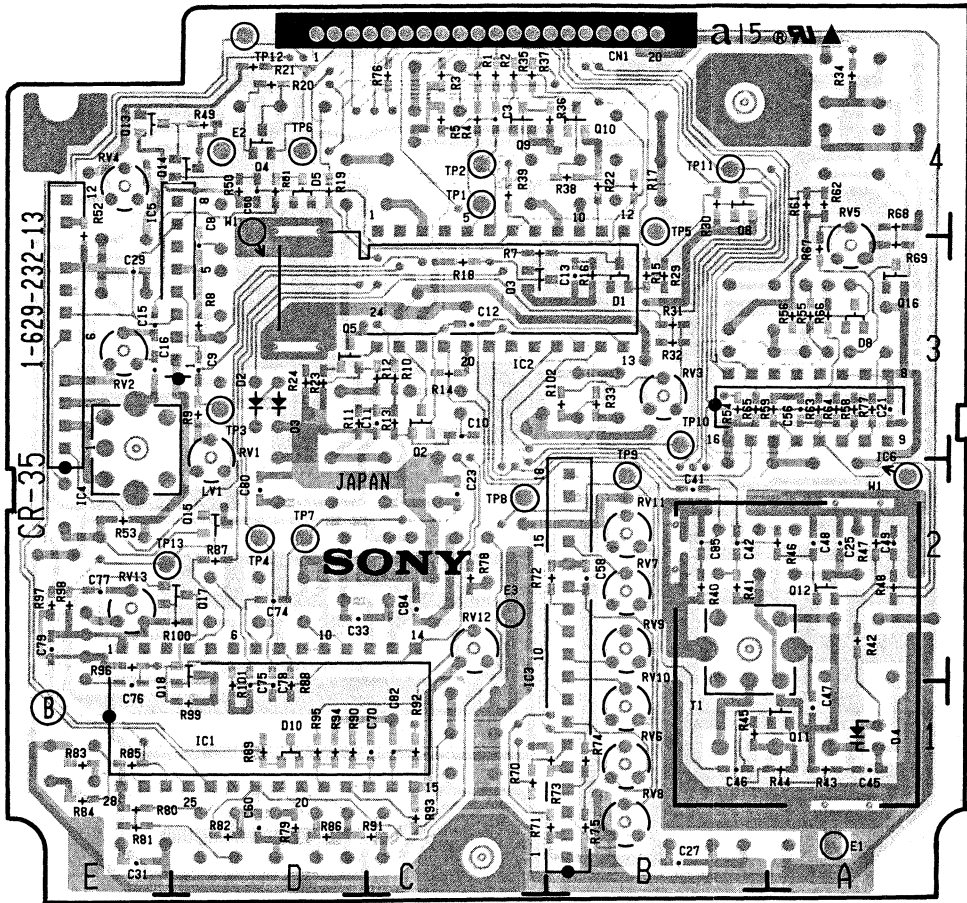
RV1 D-2 C
RV2 E-3 C
RV3 B-3 C
RV4 E-4 C
RV5 A-3 C
RV6 B-1 C
RV7 B-2 C
RV8 B-1 C
RV9 B-2 C
RV10 B-1 C
RV11 B-2 C
RV12 C-2 C
RV13 E-2 C

TP1 C-4 C
TP2 C-4 C
TP3 D-3 C
TP4 D-2 C
TP5 B-4 C
TP6 D-4 C
TP7 D-2 C
TP8 C-2 C
TP9 B-2 C
TP10 B-3 C
TP11 B-4 C
TP12 D-4 C
TP13 E-2 C

*-C: COMPONENT SIDE
*-S: SOLDERING SIDE



CR-35 - COMPONENT SIDE -
1-629-232-11, 12, 13
VO-8800P



CR-35 - SOLDERING SIDE -
1-629-232-11, 12, 13
VO-8800P

RP - 38A RP - 38A



SECTION 15
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

The VO-8800P circuit information is provided below.

| SYSTEM | BOARD | CIRCUIT FUNCTION |
|----------------|---------|---|
| VIDEO | VA-76 | Y/C Mix, Y Modulator/Demodulator, C RF PB, Video Output |
| | DUS-262 | Connection |
| | CR-35 | Chroma Processor |
| | RP-38A | REC/PB Amplifier |
| | CP-135 | Y/C Separator |
| | CM-23 | Camera IN/OUT |
| AUDIO | DU-58 | Audio R/P Head, Erase Head |
| | CP-135 | XLR IN/OUT Amplifier, Select Switch |
| | CM-23 | Camera MIC Input Select |
| | HP-45 | Phone Level |
| | SW-296 | Audio Level, Power Switch Select Switch |
| | VA-76 | REC/PB Amplifier, Dolby, Pilot Tone |
| | SY-131A | Erase/Bias Oscillator |
| SERVO | SV-108A | Drum/Capstan/Reel Servo |
| | PC-22 | Take-up/Supply Reel FG |
| | DU-58 | CTL R/P Head |
| | VR-85 | Tracking VR |
| SYSTEM CONTROL | SY-131A | System Control |
| | SE-99 | Tape Top Detector |
| | SE-118 | Tape End Detector |
| | KY-147 | Function Key/LCD Display |
| | PD-44 | Solenoid Driver |
| | HN-102 | Connection |
| | LED-69 | Tape Top LED |
| | LED-70 | Tape End LED |
| | DUS-4 | Tension Regulator Switch |

| SYSTEM | BOARD | CIRCUIT FUNCTION |
|--------|----------|----------------------------|
| POWER | VA-76 | DC-DC Converter, Regulator |
| | TR-54 | SAVE +10 V |
| OTHER | PA-85 | CONFIRF PB Amplifier |
| | SY-131A | Time Code REC/PB Amplifier |
| | CM-23 | Camera Control |
| | CN-271 | Connection |
| | *1 BP-15 | Connection |
| | *2 BP-16 | Battery Case |

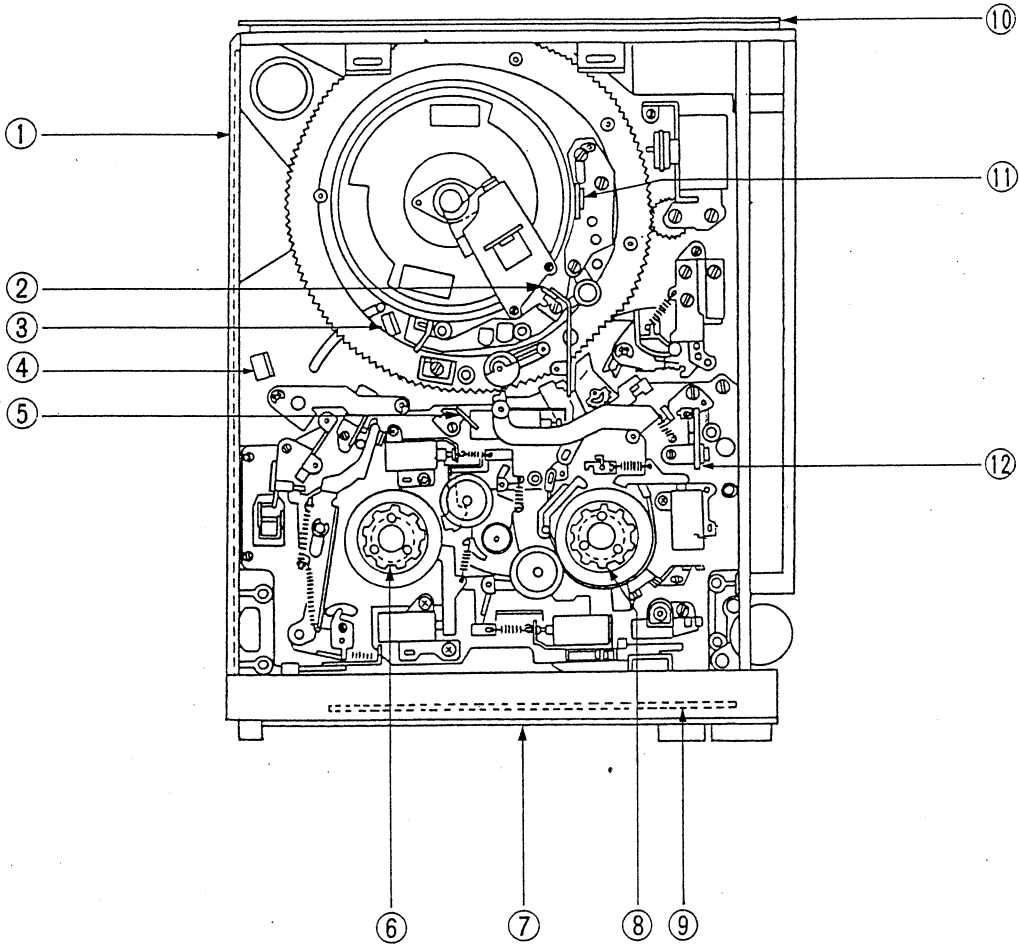
Note :
*1 marked board is for Serial No. up to 10300.
*2 marked board is for Serial No. 10301 and higher.

LOCATION

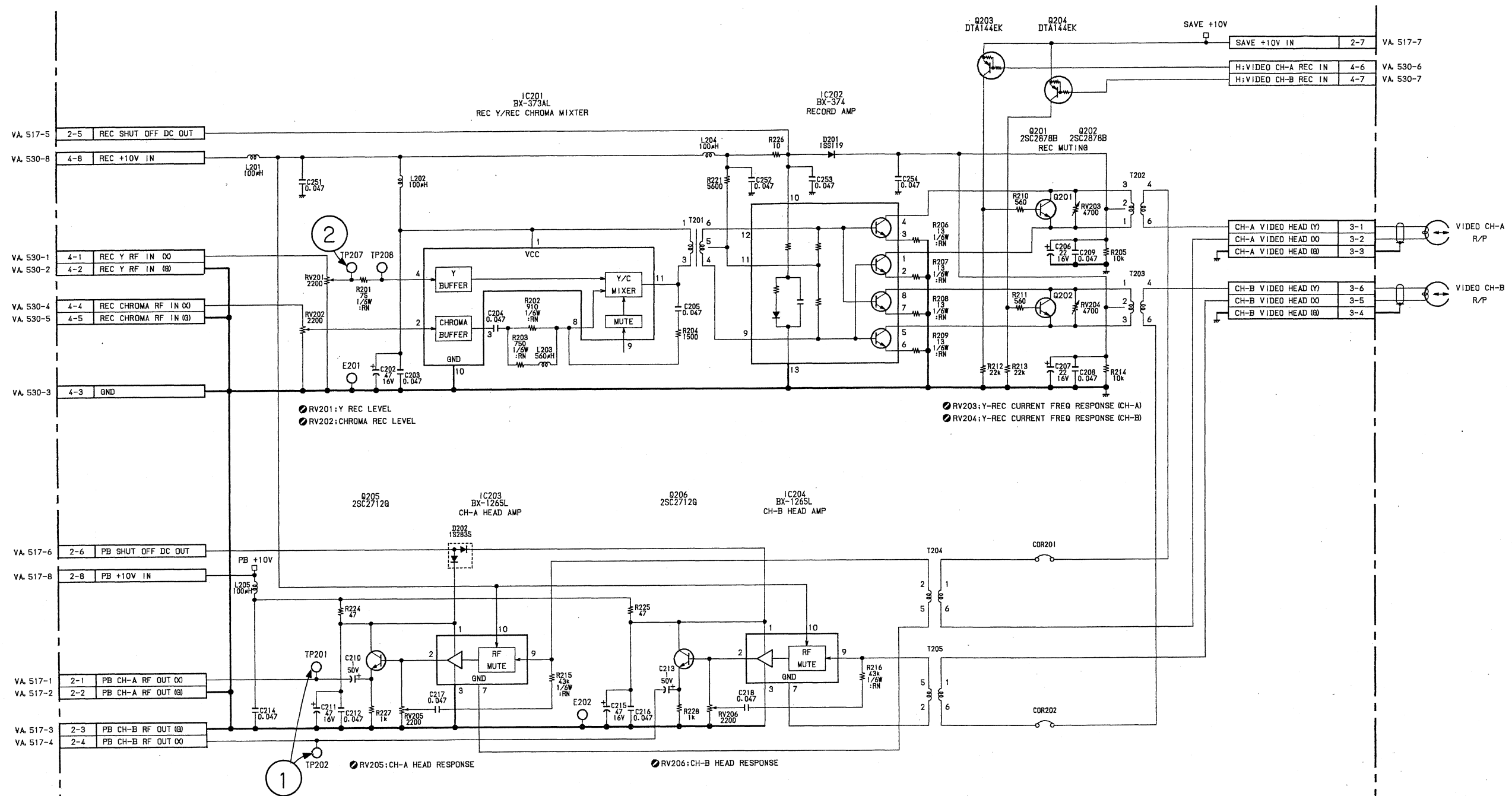
LOCATION OF THE PRINTED CIRCUIT BOARD

< TOP VIEW >

< BOTTO



- | | |
|----------------|---------------|
| ① SY Board | ⑩ SV Board |
| ② SE-118 Board | ⑪ DU-58 Board |
| ③ SE-99 Board | ⑫ DUS-4 Board |
| ④ LED-69 Board | |
| ⑤ LED-70 Board | |
| ⑥ PC-22 Board | |
| ⑦ KY-147 Board | |
| ⑧ PC-22 Board | |
| ⑨ PD-44 Board | |



| NOTE | NTSC | PAL |
|------|--------------|--------------|
| L203 | 560 μ | 180 μ |
| R202 | 910 : RN | 620 : RN |
| R203 | 750 : RN | 220 : RN |
| T202 | 1-427-472-21 | 1-426-172-11 |
| T203 | " | " |
| T205 | 1-426-319-11 | 1-426-320-11 |
| | | |
| | | |

RP-38A
1-629-245-11
VO-8800P

RP - 38A : VIDEO REC/PB AMPLIFIER

RP-38A (1-629-245-11)

CN702 A-1 C
CN703 B-1 C
CN704 D-2 C

D201 C-1 C
D202 D-2 S

E201 D-1 C
E202 A-1 C

IC201 D-1 C
IC202 C-1 C
IC203 B-1 C
IC204 B-2 C

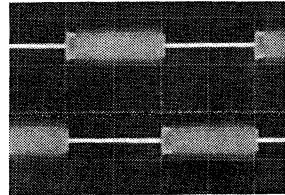
Q201 C-1 C
Q202 C-2 C
Q203 B-1 S
Q204 B-2 S
Q205 D-1 S
Q206 D-2 S

RV201 D-2 C
RV202 D-1 C
RV203 C-1 C
RV204 C-2 C
RV205 A-1 C
RV206 A-2 C

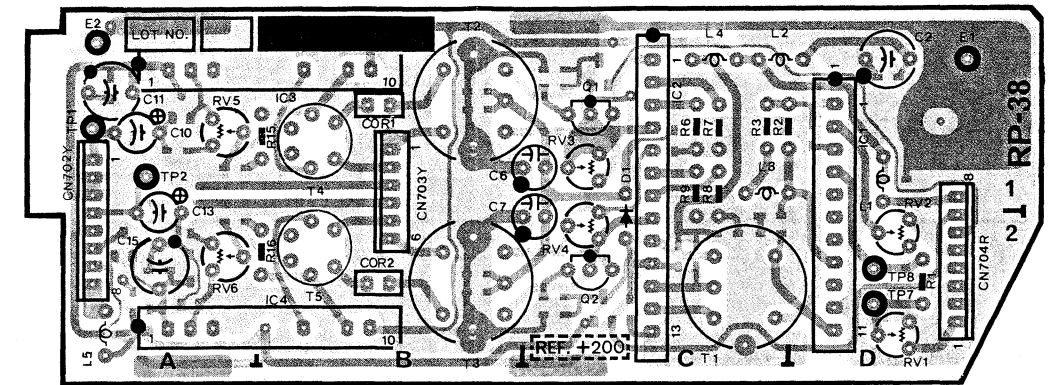
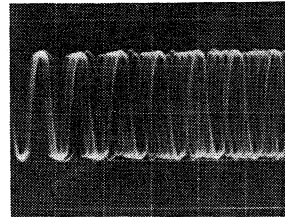
TP201 A-1 C
TP202 A-1 C
TP207 D-2 C
TP208 D-2 C

**-* C; COMPONENT SIDE
**-* S; SOLDERING SIDE

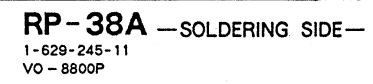
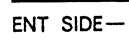
① TP 201
TP 202
PB
TRIG; TP18/VA-76
H; 10msec/DIV
V; 0.05V/DIV



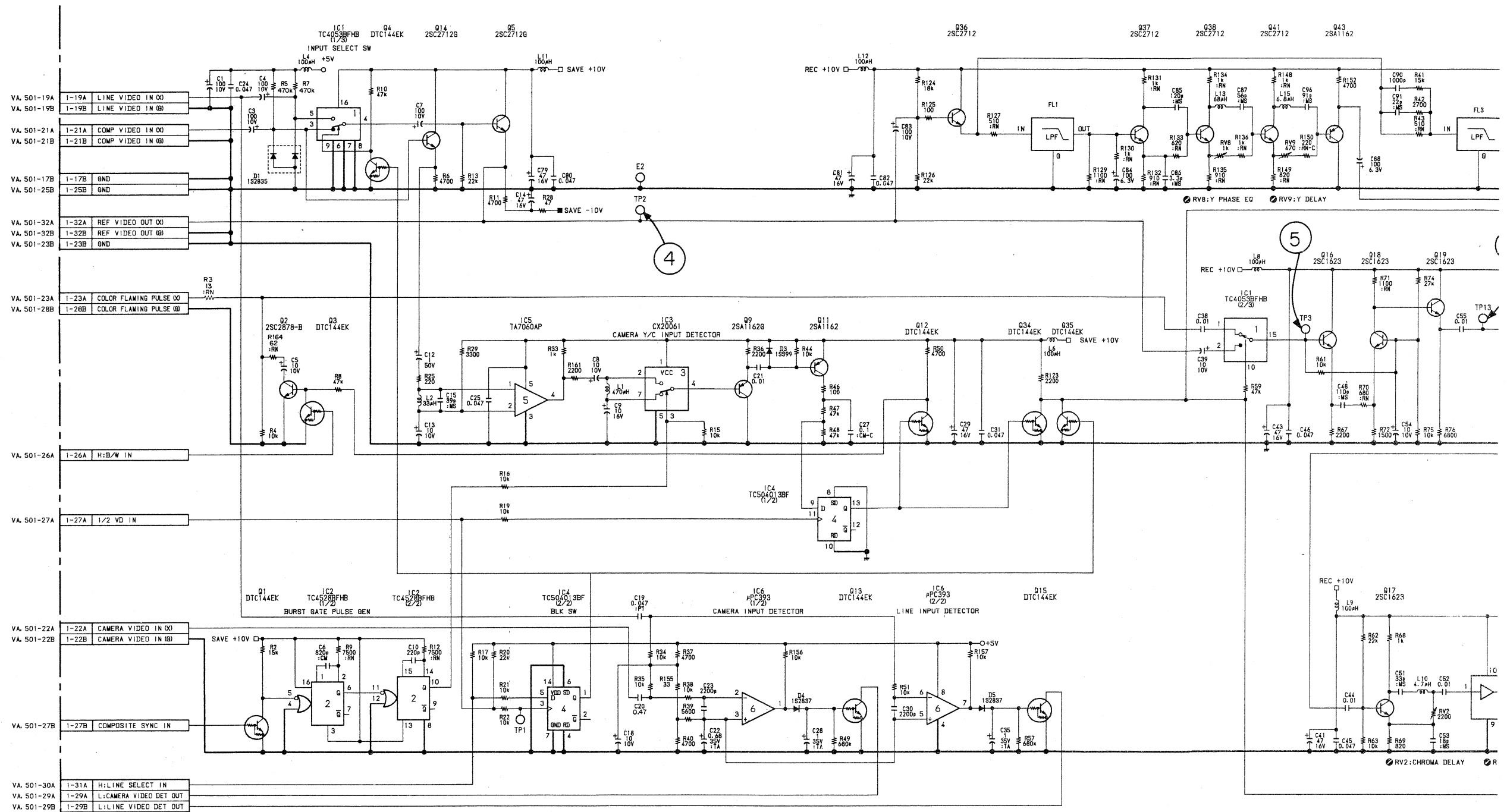
② TP 207
REC
H; 0.2μsec/DIV
V; 0.1V/DIV

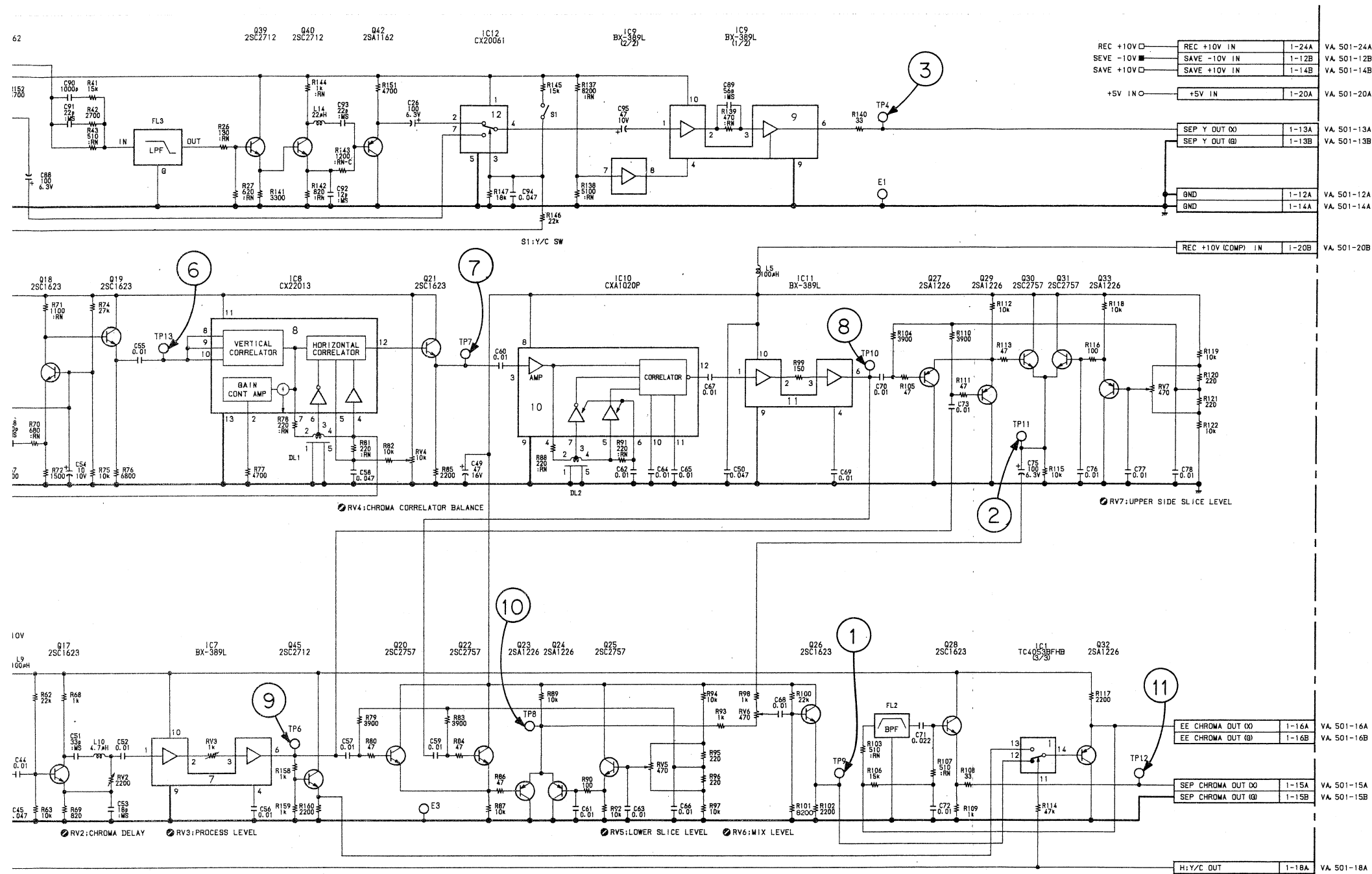


RP-38A —COMPONENT SIDE—
1-629-245-11
VO - 8800P

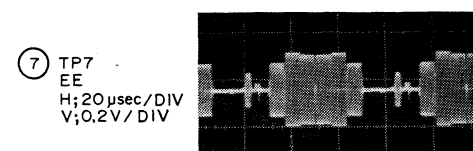
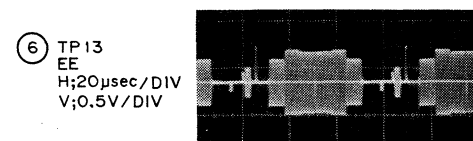
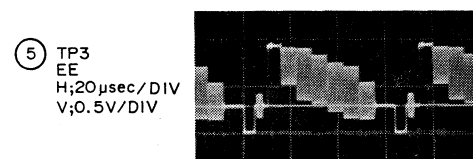
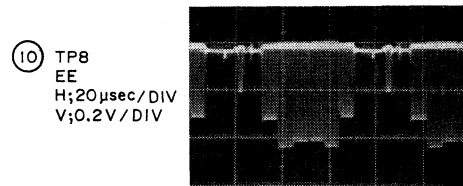
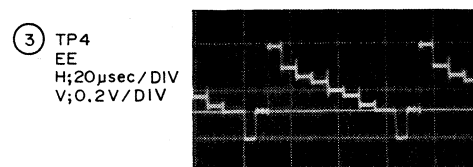
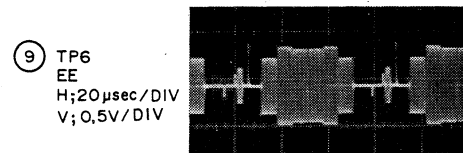
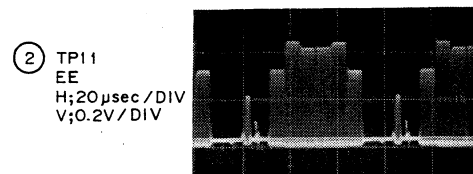
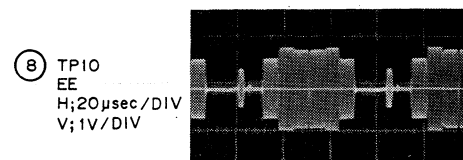
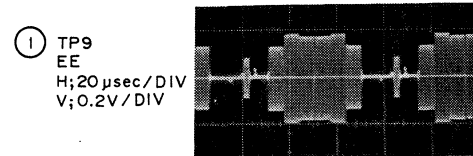


CP - 135 (1/2) : Y/C SEPARATOR

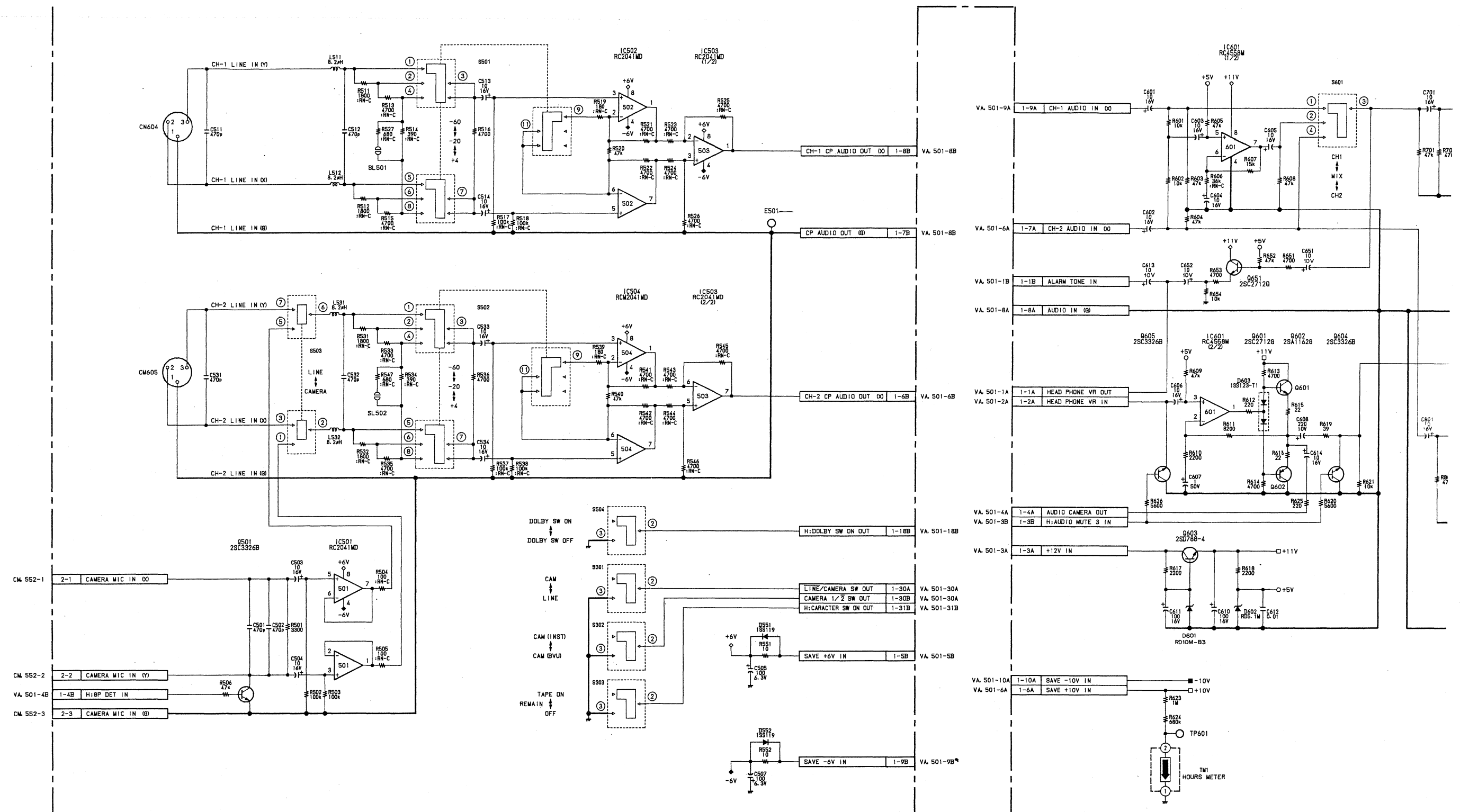


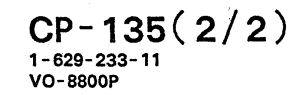


CP-135(1/2)
1-629-233-11
VO-8800P



CP - 135 (2/2) : XLR IN/OUT AMPLIFIER, SELECT SWITCH



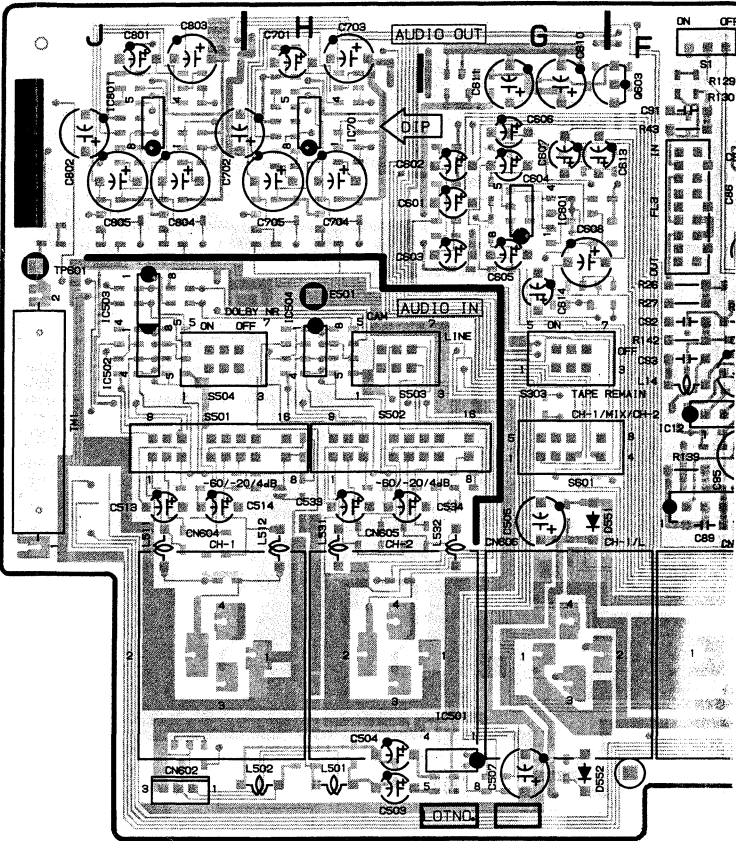


CP - 135 : Y/C SEPARATOR
XLR IN/OUT AMPLIFIER, SELECT SWITCH

CP-135 (1-629-233-11)

| | | | | | |
|-------|-----|---|-------|-----|---|
| CN601 | C-4 | S | Q26 | E-2 | S |
| CN602 | J-4 | C | Q27 | D-1 | S |
| CN604 | J-4 | C | Q28 | E-3 | S |
| CN605 | H-4 | C | Q29 | D-1 | S |
| CN606 | G-4 | C | Q30 | D-1 | S |
| CN607 | F-4 | C | Q31 | D-1 | S |
| | | | Q32 | E-3 | S |
| DL1 | D-2 | C | Q33 | E-1 | S |
| DL2 | B-1 | C | Q34 | B-3 | S |
| | | | Q35 | B-3 | S |
| D1 | C-3 | S | Q36 | E-1 | S |
| D3 | A-1 | C | Q37 | F-1 | S |
| D4 | B-3 | S | Q38 | E-2 | S |
| D5 | A-3 | S | Q39 | F-2 | S |
| D6 | A-2 | S | Q40 | F-3 | S |
| D7 | E-1 | C | Q41 | E-2 | S |
| D551 | F-4 | C | Q42 | F-3 | S |
| D552 | G-4 | C | Q43 | E-3 | S |
| D601 | G-1 | S | Q45 | D-2 | S |
| D602 | G-1 | S | Q501 | J-4 | S |
| D603 | G-1 | S | Q601 | F-2 | S |
| | | | Q602 | G-2 | S |
| E1 | D-4 | C | Q603 | F-1 | C |
| E2 | D-3 | C | Q604 | G-2 | S |
| E3 | D-2 | C | Q605 | G-1 | S |
| E501 | H-2 | C | Q701 | H-2 | S |
| E701 | E-4 | C | Q702 | H-2 | S |
| | | | Q801 | J-2 | S |
| | | | Q802 | J-2 | S |
| FL1 | E-1 | C | | | |
| FL2 | E-3 | C | RV2 | C-1 | C |
| FL3 | F-2 | C | RV3 | D-1 | C |
| | | | RV4 | D-2 | C |
| IC1 | D-4 | C | RV5 | D-2 | C |
| IC2 | B-4 | C | RV6 | E-1 | C |
| IC3 | B-1 | C | RV7 | E-1 | C |
| IC4 | B-3 | C | RV8 | F-2 | C |
| IC5 | B-2 | C | RV9 | F-3 | C |
| IC6 | B-3 | C | | | |
| IC7 | D-1 | C | S1 | F-1 | C |
| IC8 | C-2 | C | S301 | D-3 | C |
| IC9 | F-3 | C | S302 | D-3 | C |
| IC10 | B-1 | C | S303 | G-3 | C |
| IC11 | C-1 | C | S501 | J-3 | C |
| IC12 | F-3 | C | S502 | H-3 | C |
| IC501 | G-4 | C | S503 | H-3 | C |
| IC502 | J-3 | C | S504 | J-3 | C |
| IC503 | J-3 | C | S601 | G-3 | C |
| IC504 | H-3 | C | | | |
| IC501 | G-2 | C | TP1 | B-4 | C |
| IC701 | H-1 | C | TP2 | C-3 | C |
| IC801 | J-1 | C | TP3 | D-3 | C |
| | | | TP4 | E-4 | C |
| Q1 | B-1 | S | TP6 | D-1 | C |
| Q2 | B-3 | C | TP7 | C-1 | C |
| Q3 | C-3 | S | TP8 | D-2 | C |
| Q4 | D-3 | S | TP9 | E-2 | C |
| Q5 | C-3 | S | TP10 | C-1 | C |
| Q9 | A-1 | S | TP11 | D-1 | C |
| Q11 | A-1 | S | TP12 | E-3 | C |
| Q12 | B-3 | S | TP13 | C-2 | C |
| Q13 | A-3 | S | TP601 | J-2 | C |
| Q14 | D-3 | S | | | |
| Q15 | A-3 | S | | | |
| Q16 | D-3 | S | | | |
| Q17 | C-1 | S | | | |
| Q18 | D-3 | S | | | |
| Q19 | C-2 | S | | | |
| Q20 | D-2 | S | | | |
| Q21 | C-2 | S | | | |
| Q22 | D-2 | S | | | |
| Q23 | D-2 | S | | | |
| Q24 | D-2 | S | | | |
| Q25 | D-2 | S | | | |

** C; COMPONENT SIDE
** S; SOLDERING SIDE

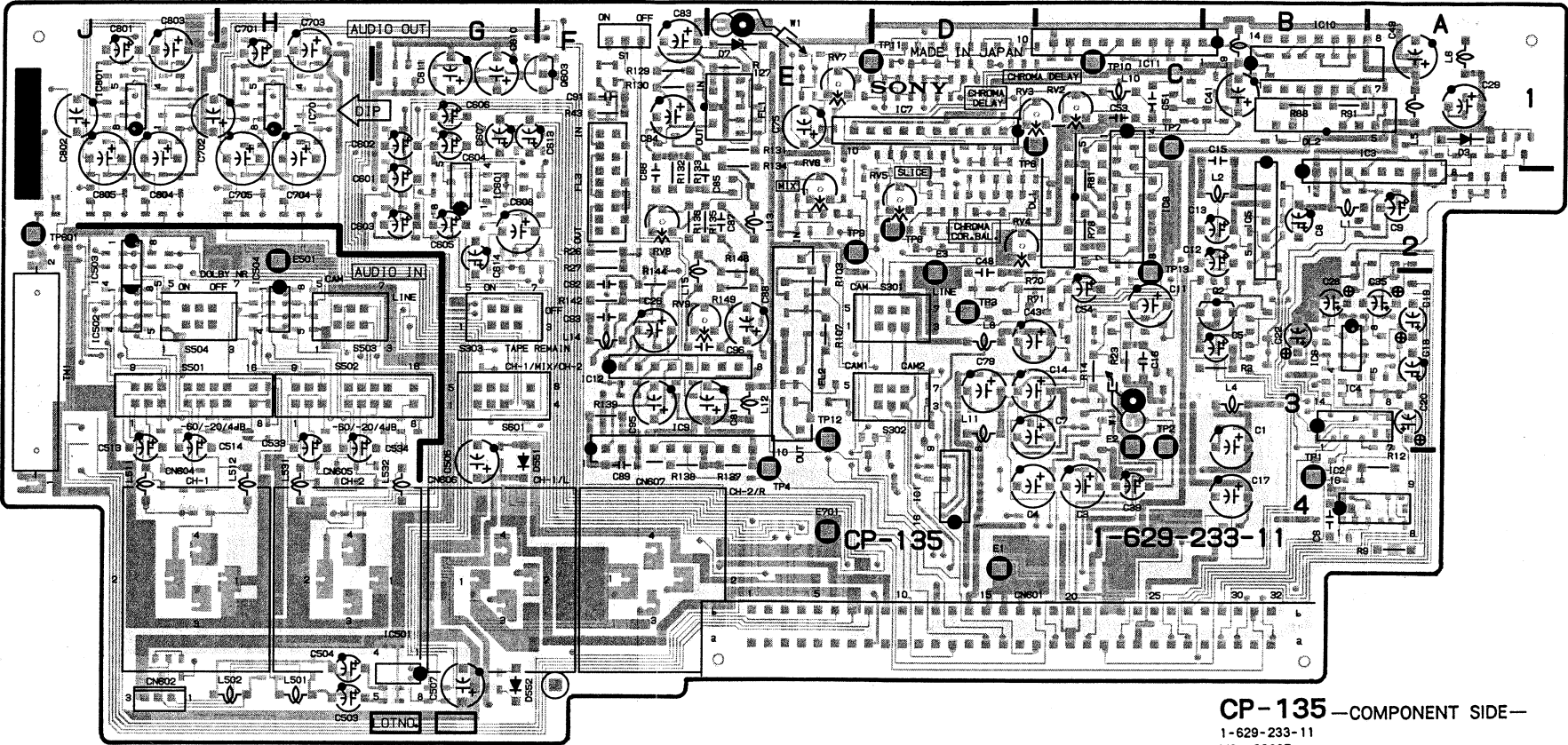


CP - 135 : Y/C SEPARATOR
XLR IN/OUT AMPLIFIER, SELECT SWITCH

CP-135 (1-629-233-11)

| | | | | | |
|-------|-----|---|-------|-----|---|
| CN601 | C-4 | S | Q26 | E-2 | S |
| CN602 | J-4 | C | Q27 | D-1 | S |
| CN604 | J-4 | C | Q28 | E-3 | S |
| CN605 | H-4 | C | Q29 | D-1 | S |
| CN606 | G-4 | C | Q30 | D-1 | S |
| CN607 | F-4 | C | Q31 | D-1 | S |
| | | | Q32 | E-3 | S |
| DL1 | D-2 | C | Q33 | E-1 | S |
| DL2 | B-1 | C | Q34 | B-3 | S |
| | | | Q35 | B-3 | S |
| D1 | C-3 | S | Q36 | E-1 | S |
| D3 | A-1 | C | Q37 | F-1 | S |
| D4 | B-3 | S | Q38 | E-2 | S |
| D5 | A-3 | S | Q39 | F-2 | S |
| D6 | A-2 | S | Q40 | F-3 | S |
| D7 | E-1 | C | Q41 | E-2 | S |
| D551 | F-4 | C | Q42 | F-3 | S |
| D552 | G-4 | C | Q43 | E-3 | S |
| D601 | G-1 | S | Q45 | D-2 | S |
| D602 | G-1 | S | Q501 | J-4 | S |
| D603 | G-1 | S | Q601 | F-2 | S |
| | | | Q602 | G-2 | S |
| E1 | D-4 | C | Q603 | F-1 | C |
| E2 | D-3 | C | Q604 | G-2 | S |
| E3 | D-2 | C | Q605 | G-1 | S |
| E501 | H-2 | C | Q701 | H-2 | S |
| E701 | E-4 | C | Q702 | H-2 | S |
| | | | Q801 | J-2 | S |
| | | | Q802 | J-2 | S |
| FL1 | E-1 | C | RV2 | C-1 | C |
| FL2 | E-3 | C | RV3 | D-1 | C |
| FL3 | F-2 | C | RV4 | D-2 | C |
| | | | RV5 | D-2 | C |
| IC1 | D-4 | C | RV6 | E-1 | C |
| IC2 | B-4 | C | RV7 | E-1 | C |
| IC3 | B-1 | C | RV8 | F-2 | C |
| IC4 | B-3 | C | RV9 | F-3 | C |
| IC5 | B-2 | C | | | |
| IC6 | B-3 | C | | | |
| IC7 | D-1 | C | | | |
| IC8 | C-2 | C | S1 | F-1 | C |
| IC9 | F-3 | C | S301 | D-3 | C |
| IC10 | B-1 | C | S302 | D-3 | C |
| IC11 | C-1 | C | S303 | G-3 | C |
| IC12 | F-3 | C | S501 | J-3 | C |
| IC501 | G-4 | C | S502 | H-3 | C |
| IC502 | J-3 | C | S503 | H-3 | C |
| IC503 | J-3 | C | S504 | J-3 | C |
| IC504 | H-3 | C | S601 | G-3 | C |
| IC601 | G-2 | C | | | |
| IC701 | H-1 | C | TP1 | B-4 | C |
| IC801 | J-1 | C | TP2 | C-3 | C |
| | | | TP3 | D-3 | C |
| Q1 | B-1 | S | TP4 | E-4 | C |
| Q2 | B-3 | C | TP6 | D-1 | C |
| Q3 | C-3 | S | TP7 | C-1 | C |
| Q4 | D-3 | S | TP8 | D-2 | C |
| Q5 | C-3 | S | TP9 | E-2 | C |
| Q9 | A-1 | S | TP10 | C-1 | C |
| Q11 | A-1 | S | TP11 | D-1 | C |
| Q12 | B-3 | S | TP12 | E-3 | C |
| Q13 | A-3 | S | TP13 | C-2 | C |
| Q14 | D-3 | S | TP601 | J-2 | C |
| Q15 | A-3 | S | | | |
| Q16 | D-3 | S | | | |
| Q17 | C-1 | S | | | |
| Q18 | D-3 | S | | | |
| Q19 | C-2 | S | | | |
| Q20 | D-2 | S | | | |
| Q21 | C-2 | S | | | |
| Q22 | D-2 | S | | | |
| Q23 | D-2 | S | | | |
| Q24 | D-2 | S | | | |
| Q25 | D-2 | S | | | |

** C; COMPONENT SIDE
** S; SOLDERING SIDE



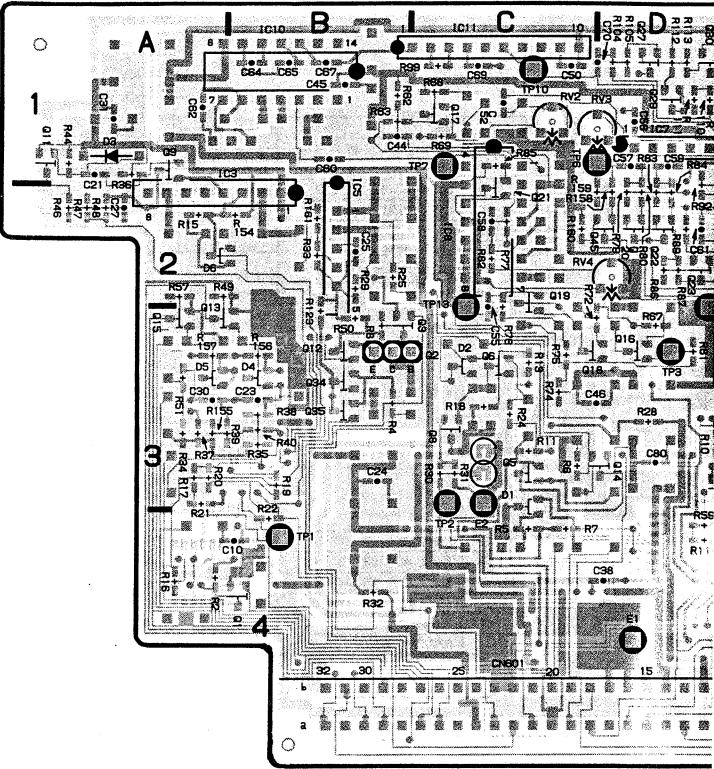
CP-135—COMPONENT SIDE—
1-629-233-11
VO-8800P

CP - 135 : Y/C SEPARATOR
XLR IN/OUT AMPLIFIER, SELECT SWITCH

CP-135 (1-629-233-11)

| | | | | | |
|-------|-----|---|-------|-----|---|
| CN601 | C-4 | S | Q26 | E-2 | S |
| CN602 | J-4 | C | Q27 | D-1 | S |
| CN604 | J-4 | C | Q28 | E-3 | S |
| CN605 | H-4 | C | Q29 | D-1 | S |
| CN606 | G-4 | C | Q30 | D-1 | S |
| CN607 | F-4 | C | Q31 | D-1 | S |
| | | | Q32 | E-3 | S |
| DL1 | D-2 | C | Q33 | E-1 | S |
| DL2 | B-1 | C | Q34 | B-3 | S |
| | | | Q35 | B-3 | S |
| D1 | C-3 | S | Q36 | E-1 | S |
| D3 | A-1 | C | Q37 | F-1 | S |
| D4 | B-3 | S | Q38 | E-2 | S |
| D5 | A-3 | S | Q39 | F-2 | S |
| D6 | A-2 | S | Q40 | F-3 | S |
| D7 | E-1 | C | Q41 | E-2 | S |
| D551 | F-4 | C | Q42 | F-3 | S |
| D552 | G-4 | C | Q43 | E-3 | S |
| D601 | G-1 | S | Q45 | D-2 | S |
| D602 | G-1 | S | Q501 | J-4 | S |
| D603 | G-1 | S | Q601 | F-2 | S |
| | | | Q602 | G-2 | S |
| E1 | D-4 | C | Q603 | F-1 | C |
| E2 | D-3 | C | Q604 | G-2 | S |
| E3 | D-2 | C | Q605 | G-1 | S |
| E501 | H-2 | C | Q701 | H-2 | S |
| E701 | E-4 | C | Q702 | H-2 | S |
| | | | Q801 | J-2 | S |
| | | | Q802 | J-2 | S |
| FL1 | E-1 | C | RV2 | C-1 | C |
| FL2 | E-3 | C | RV3 | D-1 | C |
| FL3 | F-2 | C | RV4 | D-2 | C |
| | | | RV5 | D-2 | C |
| IC1 | D-4 | C | RV6 | E-1 | C |
| IC2 | B-4 | C | RV7 | E-1 | C |
| IC3 | B-1 | C | RV8 | F-2 | C |
| IC4 | B-3 | C | RV9 | F-3 | C |
| IC5 | B-2 | C | | | |
| IC6 | B-3 | C | S1 | F-1 | C |
| IC7 | D-1 | C | S301 | D-3 | C |
| IC8 | C-2 | C | S302 | D-3 | C |
| IC9 | F-3 | C | S303 | G-3 | C |
| IC10 | B-1 | C | S501 | J-3 | C |
| IC11 | C-1 | C | S502 | H-3 | C |
| IC12 | F-3 | C | S503 | H-3 | C |
| IC501 | G-4 | C | S504 | J-3 | C |
| IC502 | J-3 | C | S601 | G-3 | C |
| IC503 | J-3 | C | | | |
| IC504 | H-3 | C | TP1 | B-4 | C |
| IC601 | G-2 | C | TP2 | C-3 | C |
| IC701 | H-1 | C | TP3 | D-3 | C |
| IC801 | J-1 | C | TP4 | E-4 | C |
| | | | TP6 | D-1 | C |
| Q1 | B-1 | S | TP7 | C-1 | C |
| Q2 | B-3 | C | TP8 | D-2 | C |
| Q3 | C-3 | S | TP9 | E-2 | C |
| Q4 | D-3 | S | TP10 | C-1 | C |
| Q5 | C-3 | S | TP11 | D-1 | C |
| Q9 | A-1 | S | TP12 | E-3 | C |
| Q11 | A-1 | S | TP13 | C-2 | C |
| Q12 | B-3 | S | TP601 | J-2 | C |
| Q13 | A-3 | S | | | |
| Q14 | D-3 | S | | | |
| Q15 | A-3 | S | | | |
| Q16 | D-3 | S | | | |
| Q17 | C-1 | S | | | |
| Q18 | D-3 | S | | | |
| Q19 | C-2 | S | | | |
| Q20 | D-2 | S | | | |
| Q21 | C-2 | S | | | |
| Q22 | D-2 | S | | | |
| Q23 | D-2 | S | | | |
| Q24 | D-2 | S | | | |
| Q25 | D-2 | S | | | |

*** C; COMPONENT SIDE
*** S; SOLDERING SIDE



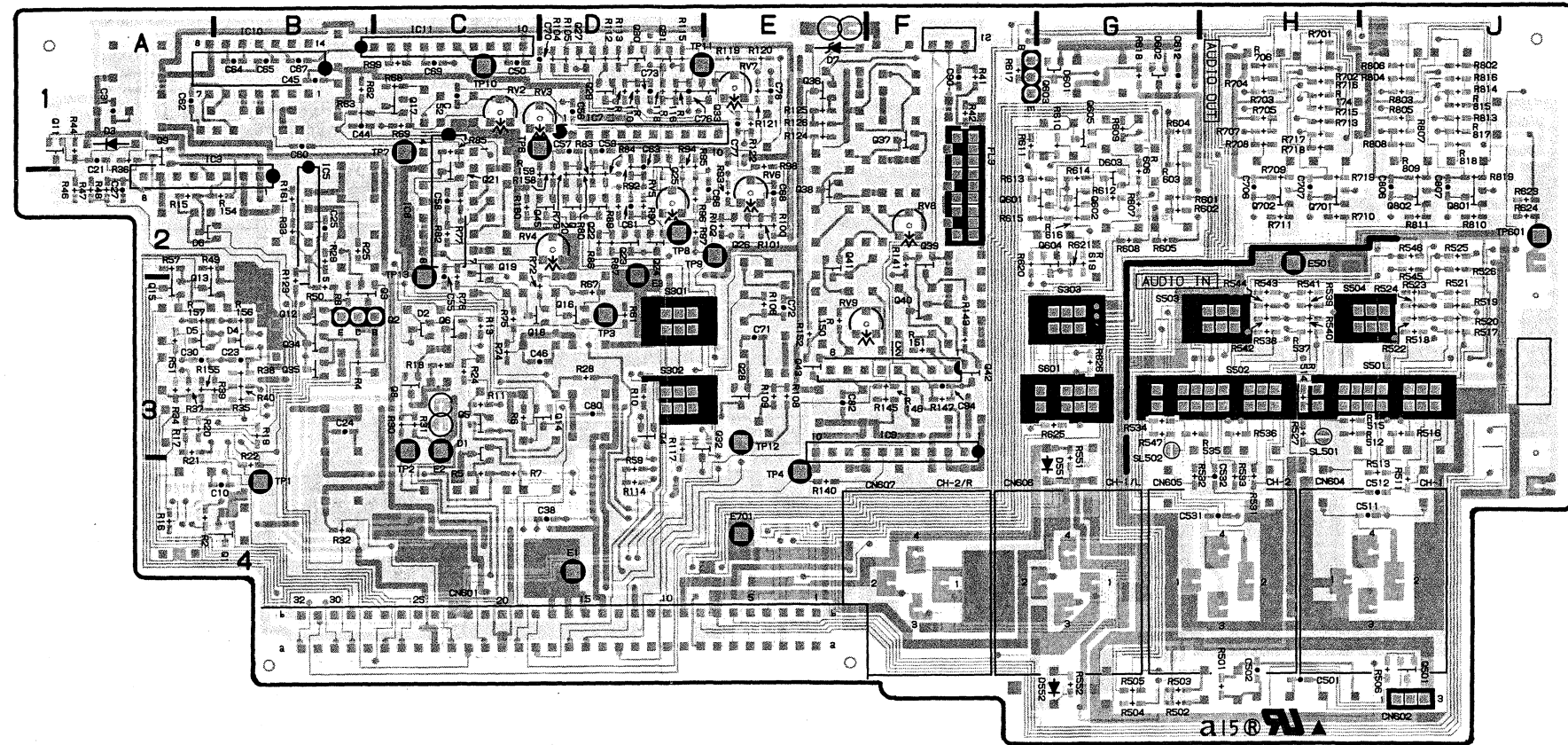
CP - 135 : Y/C SEPARATOR

XLR IN/OUT AMPLIFIER, SELECT SWITCH

CP-135 (1-629-233-11)

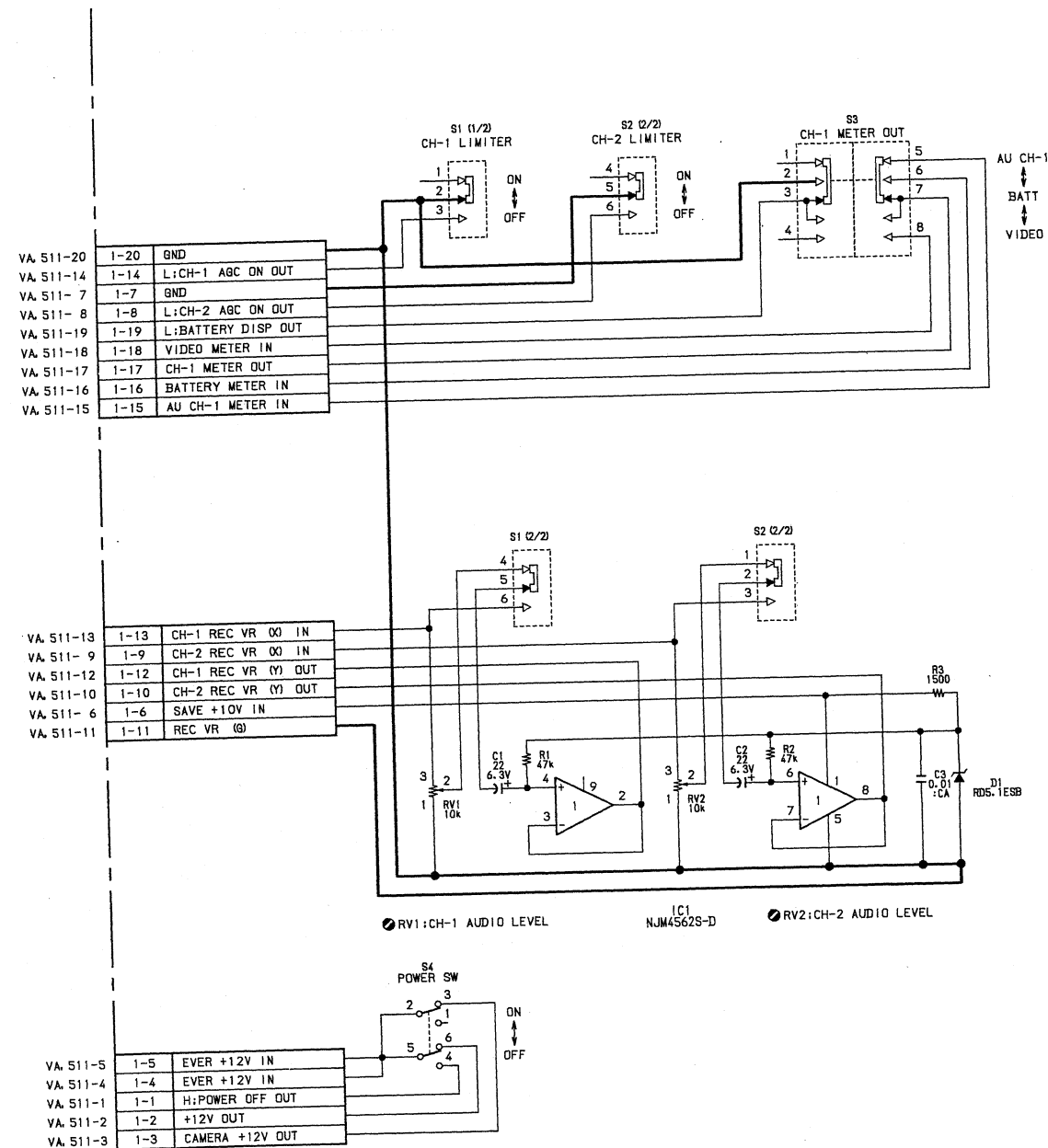
| | | | | | |
|-------|-----|---|-------|-----|---|
| CN601 | C-4 | S | Q26 | E-2 | S |
| CN602 | J-4 | C | Q27 | D-1 | S |
| CN604 | J-4 | C | Q28 | E-3 | S |
| CN605 | H-4 | C | Q29 | D-1 | S |
| CN606 | G-4 | C | Q30 | D-1 | S |
| CN607 | F-4 | C | Q31 | D-1 | S |
| | | | Q32 | E-3 | S |
| DL1 | D-2 | C | Q33 | E-1 | S |
| DL2 | B-1 | C | Q34 | B-3 | S |
| | | | Q35 | B-3 | S |
| D1 | C-3 | S | Q36 | E-1 | S |
| D3 | A-1 | C | Q37 | F-1 | S |
| D4 | B-3 | S | Q38 | E-2 | S |
| D5 | A-3 | S | Q39 | F-2 | S |
| D6 | A-2 | S | Q40 | F-3 | S |
| D7 | E-1 | C | Q41 | E-2 | S |
| D551 | F-4 | C | Q42 | F-3 | S |
| D552 | G-4 | C | Q43 | E-3 | S |
| D601 | G-1 | S | Q45 | D-2 | S |
| D602 | G-1 | S | Q501 | J-4 | S |
| D603 | G-1 | S | Q601 | F-2 | S |
| | | | Q602 | G-2 | S |
| E1 | D-4 | C | Q603 | F-1 | C |
| E2 | D-3 | C | Q604 | G-2 | S |
| E3 | D-2 | C | Q605 | G-1 | S |
| E501 | H-2 | C | Q701 | H-2 | S |
| E701 | E-4 | C | Q702 | H-2 | S |
| | | | Q801 | J-2 | S |
| | | | Q802 | J-2 | S |
| FL1 | E-1 | C | | | |
| FL2 | E-3 | C | | | |
| FL3 | F-2 | C | | | |
| | | | RV2 | C-1 | C |
| | | | RV3 | D-1 | C |
| IC1 | D-4 | C | RV4 | D-2 | C |
| IC2 | B-4 | C | RV5 | D-2 | C |
| IC3 | B-1 | C | RV6 | E-1 | C |
| IC4 | B-3 | C | RV7 | E-1 | C |
| IC5 | B-2 | C | RV8 | F-2 | C |
| IC6 | B-3 | C | RV9 | F-3 | C |
| IC7 | D-1 | C | | | |
| IC8 | C-2 | C | S1 | F-1 | C |
| IC9 | F-3 | C | S301 | D-3 | C |
| IC10 | B-1 | C | S302 | D-3 | C |
| IC11 | C-1 | C | S303 | G-3 | C |
| IC12 | F-3 | C | S501 | J-3 | C |
| IC501 | G-4 | C | S502 | H-3 | C |
| IC502 | J-3 | C | S503 | H-3 | C |
| IC503 | J-3 | C | S504 | J-3 | C |
| IC504 | H-3 | C | S601 | G-3 | C |
| IC601 | G-2 | C | | | |
| IC701 | H-1 | C | TP1 | B-4 | C |
| IC801 | J-1 | C | TP2 | C-3 | C |
| | | | TP3 | D-3 | C |
| | | | TP4 | E-4 | C |
| Q1 | B-1 | S | TP6 | D-1 | C |
| Q2 | B-3 | S | TP7 | C-1 | C |
| Q3 | C-3 | S | TP8 | D-2 | C |
| Q4 | D-3 | S | TP9 | E-2 | C |
| Q5 | C-3 | S | TP10 | C-1 | C |
| Q9 | A-1 | S | TP11 | D-1 | C |
| Q11 | A-1 | S | TP12 | E-3 | C |
| Q12 | B-3 | S | TP13 | C-2 | C |
| Q13 | A-3 | S | TP601 | J-2 | C |
| Q14 | D-3 | S | | | |
| Q15 | A-3 | S | | | |
| Q16 | D-3 | S | | | |
| Q17 | C-1 | S | | | |
| Q18 | D-3 | S | | | |
| Q19 | C-2 | S | | | |
| Q20 | D-2 | S | | | |
| Q21 | C-2 | S | | | |
| Q22 | D-2 | S | | | |
| Q23 | D-2 | S | | | |
| Q24 | D-2 | S | | | |
| Q25 | D-2 | S | | | |

*** C; COMPONENT SIDE
*** S; SOLDERING SIDE

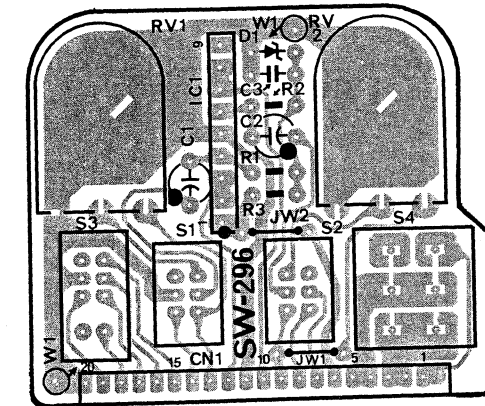


CP - 135 — SOLDERING SIDE —
1-629-233-11
VO - 8800P

SW - 296 : AUDIO LEVEL, POWER SWITCH, SELECT SWITCH

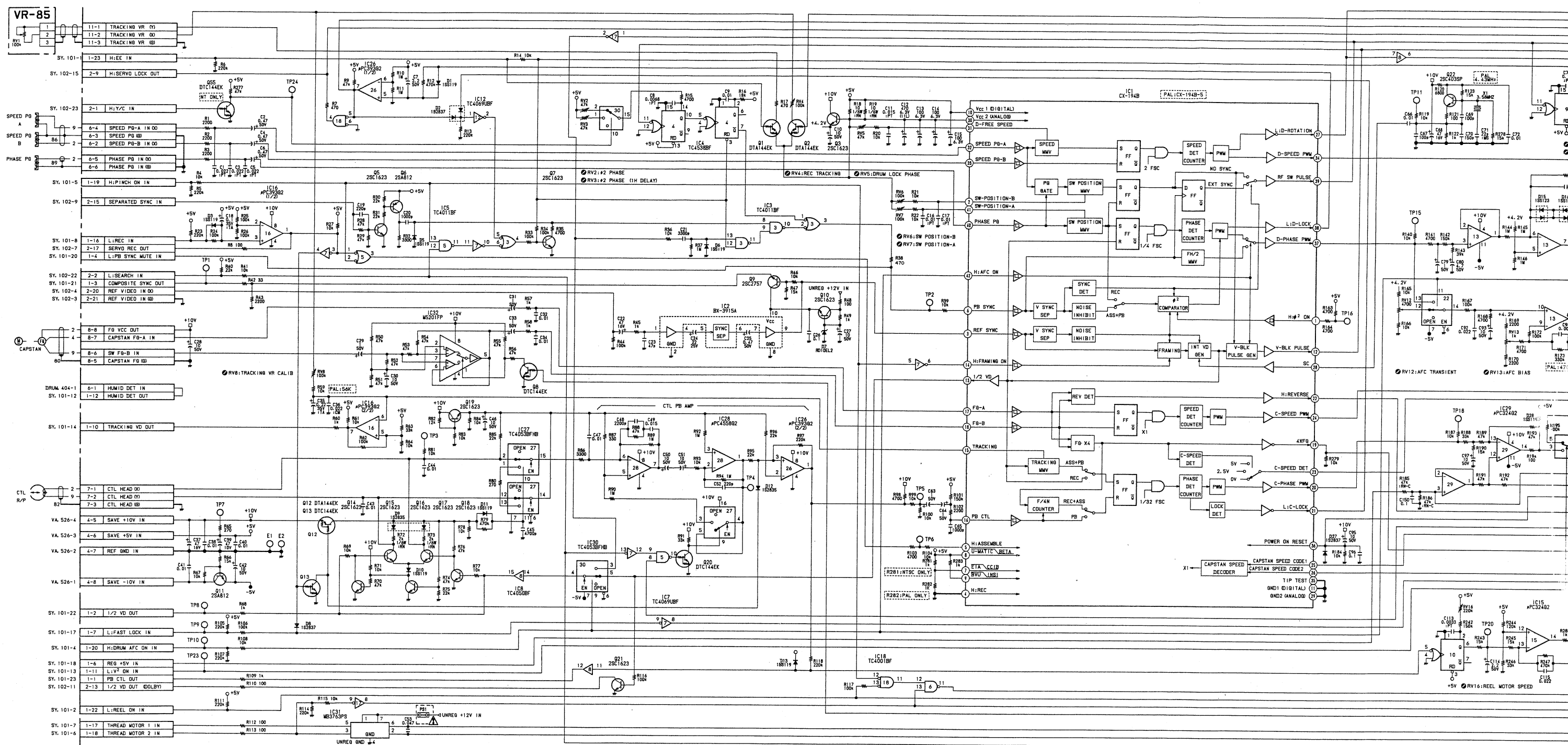


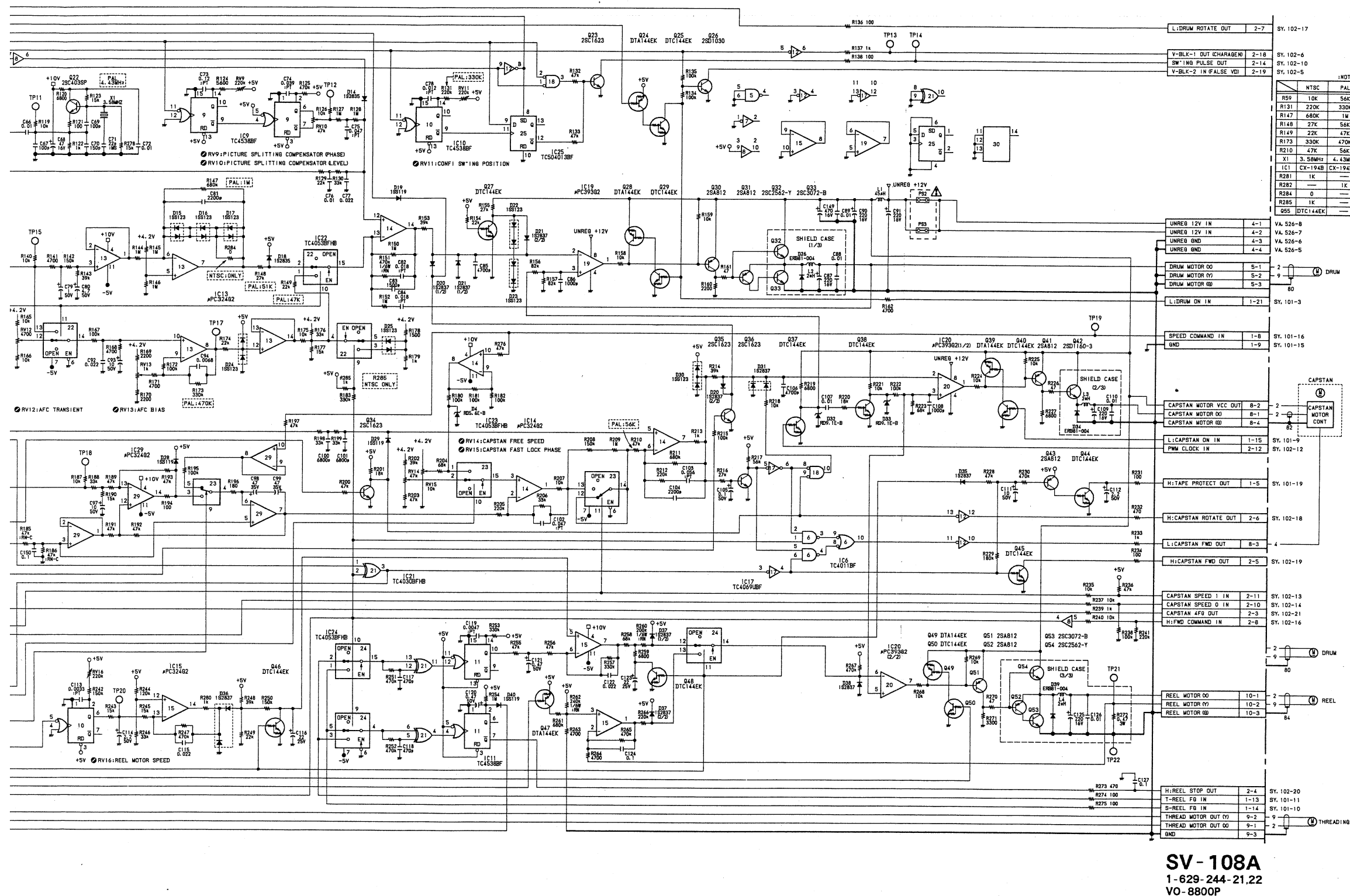
SW - 296
1-629-246-11, 12
VO-8800P



SW - 296 —COMPONENT SIDE—
1-629-246-12
VO-8800P

SV – 108A : DRUM/CAPSTAN/REEL SERVO



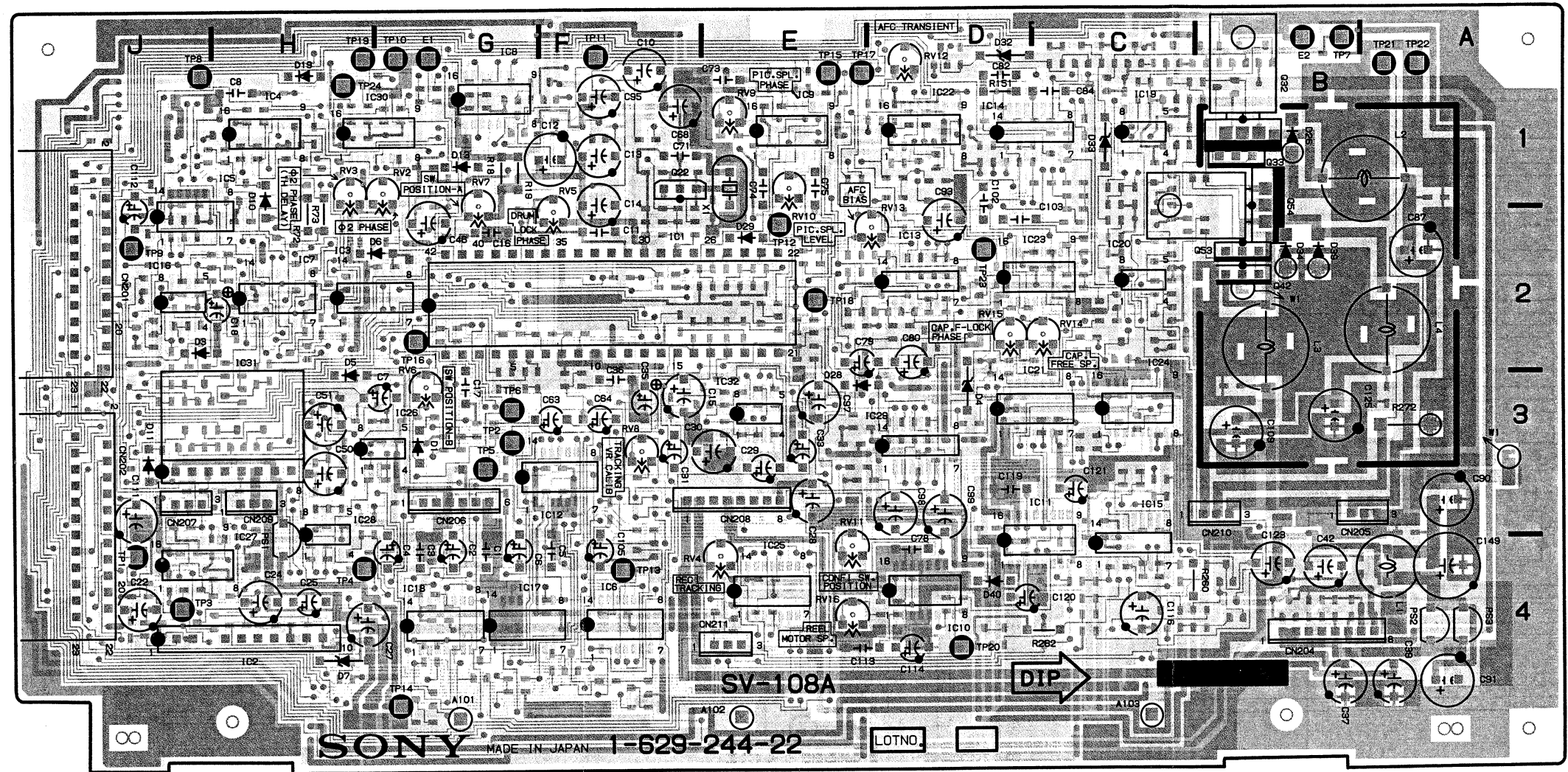


SV - 108A : DRUM/CAPSTAN/REEL SERVO

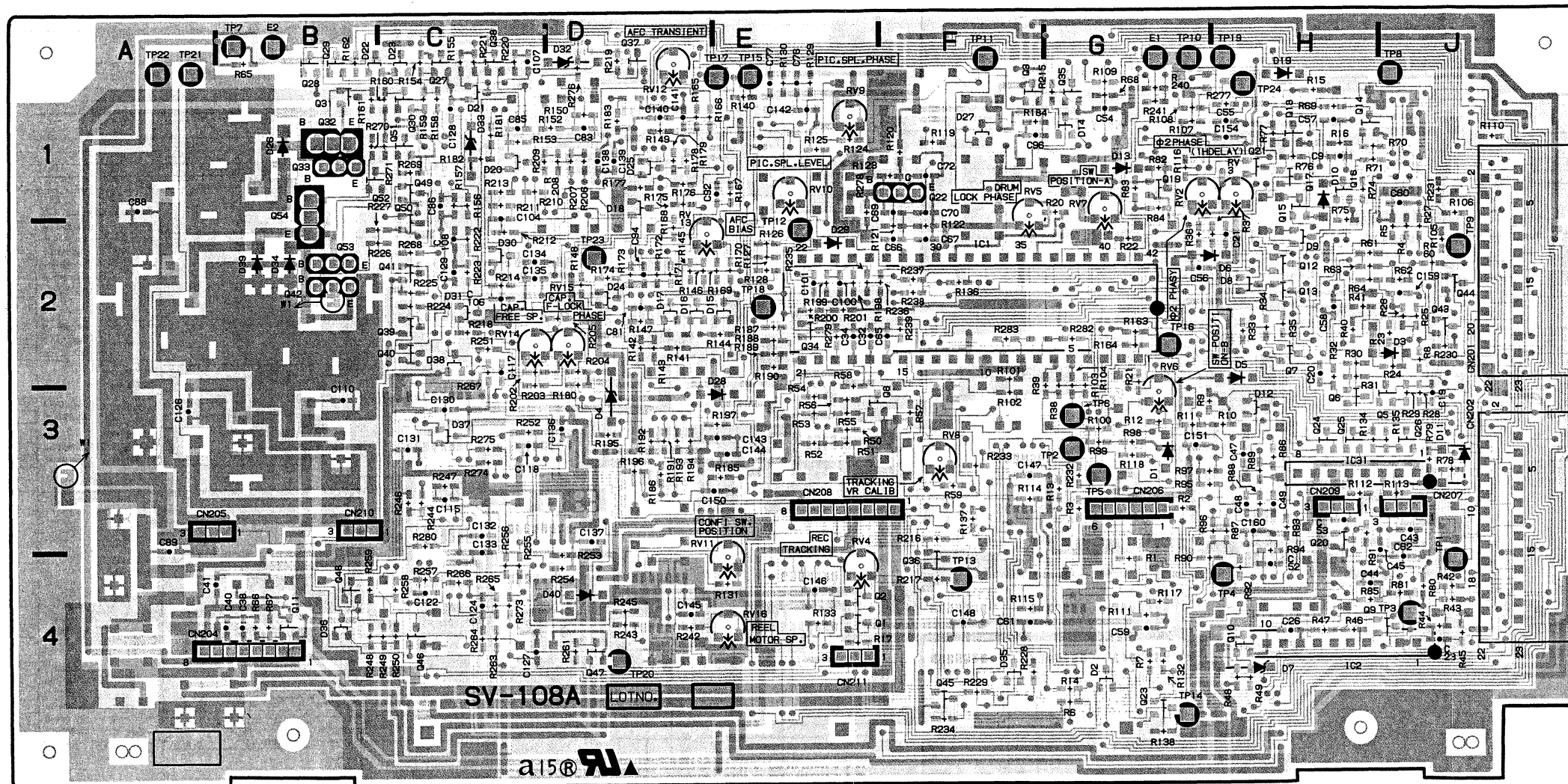
SV-108A (1-629-244-21, 22)

| | | | | | |
|-------|-------|------|-------|------|-------|
| CN201 | J-2 C | IC19 | C-1 C | RV7 | G-1 C |
| CN202 | J-3 C | IC20 | C-2 C | RV8 | F-3 C |
| CN204 | B-4 C | IC21 | D-3 C | RV9 | E-1 C |
| CN205 | B-3 C | IC22 | D-1 C | RV10 | E-2 C |
| CN206 | G-3 C | IC23 | D-2 C | RV11 | E-3 C |
| CN207 | J-3 C | IC24 | C-2 C | RV12 | D-1 C |
| CN208 | E-3 C | IC25 | E-4 C | RV13 | D-1 C |
| CN209 | H-3 C | IC26 | G-3 C | RV14 | C-2 C |
| CN210 | B-3 C | IC27 | H-3 C | RV15 | D-2 C |
| CN211 | E-4 C | IC28 | H-3 C | RV16 | E-4 C |
| | | IC29 | D-3 C | | |
| D1 | G-3 C | IC30 | H-1 C | TP1 | J-3 C |
| D2 | G-4 S | IC31 | H-2 C | TP2 | G-3 C |
| D3 | J-2 C | IC32 | E-3 C | TP3 | J-4 C |
| D4 | D-3 C | | | TP4 | H-4 C |
| D5 | H-2 C | Q1 | F-4 S | TP5 | G-3 C |
| D6 | H-2 C | Q2 | F-4 S | TP6 | G-3 C |
| D7 | H-4 C | Q3 | F-1 S | TP7 | B-1 C |
| D8 | H-2 S | Q5 | J-3 S | TP8 | J-1 C |
| D9 | H-2 S | Q6 | H-2 S | TP9 | J-2 C |
| D10 | H-1 C | Q7 | H-2 S | TP10 | G-1 C |
| D11 | J-3 C | Q8 | F-3 S | TP11 | F-1 C |
| D12 | H-3 S | Q9 | H-4 S | TP12 | E-2 C |
| D13 | G-1 C | Q10 | H-4 S | TP13 | F-4 C |
| D14 | G-1 S | Q11 | B-4 S | TP14 | G-4 C |
| D15 | E-2 S | Q12 | H-2 S | TP15 | E-1 C |
| D16 | D-2 S | Q13 | H-2 S | TP16 | G-2 C |
| D17 | D-2 S | Q14 | H-1 S | TP17 | E-1 C |
| D18 | D-1 S | Q15 | H-1 S | TP18 | E-2 C |
| D19 | H-1 C | Q16 | H-1 S | TP19 | H-1 C |
| D20 | C-1 S | Q17 | H-1 S | TP20 | D-4 C |
| D21 | C-1 S | Q18 | H-1 S | TP21 | A-1 C |
| D22 | B-1 S | Q19 | G-1 S | TP22 | A-1 C |
| D23 | C-1 S | Q20 | H-3 S | TP23 | D-2 C |
| D24 | D-2 S | Q21 | H-1 S | TP24 | H-1 C |
| D25 | D-1 S | Q22 | F-1 C | | |
| D26 | B-1 C | Q23 | G-4 S | X1 | E-1 C |
| D27 | F-1 S | Q24 | H-3 S | | |
| D28 | E-3 C | Q25 | H-3 S | | |
| D29 | E-2 C | Q26 | J-3 S | | |
| D30 | C-2 S | Q27 | C-1 S | | |
| D31 | C-2 S | Q28 | B-1 S | | |
| D32 | D-1 C | Q29 | B-1 S | | |
| D33 | C-1 C | Q30 | C-1 S | | |
| D34 | B-2 C | Q31 | B-1 S | | |
| D35 | F-4 S | Q32 | B-1 C | | |
| D36 | B-4 S | Q33 | B-1 C | | |
| D37 | C-3 S | Q34 | E-2 S | | |
| D38 | C-2 S | Q35 | G-1 S | | |
| D39 | B-2 C | Q36 | F-4 S | | |
| D40 | D-4 C | Q37 | D-1 S | | |
| | | Q38 | C-1 S | | |
| E1 | G-1 C | Q39 | C-2 S | | |
| E2 | B-1 C | Q40 | C-2 S | | |
| | | Q41 | C-2 S | | |
| IC1 | F-2 C | Q42 | B-2 C | | |
| IC2 | H-4 C | Q43 | J-2 S | | |
| IC3 | H-2 C | Q44 | J-2 S | | |
| IC4 | H-1 C | Q45 | F-4 S | | |
| IC5 | H-1 C | Q46 | C-4 S | | |
| IC6 | F-4 C | Q47 | D-4 S | | |
| IC7 | H-2 C | Q48 | B-4 S | | |
| IC8 | G-1 C | Q49 | C-1 S | | |
| IC9 | E-1 C | Q50 | C-1 S | | |
| IC10 | D-4 C | Q51 | C-1 S | | |
| IC11 | C-3 C | Q52 | B-1 S | | |
| IC12 | F-3 C | Q53 | B-2 C | | |
| IC13 | D-2 C | Q54 | B-1 C | | |
| IC14 | D-1 C | RV2 | G-1 C | | |
| IC15 | C-3 C | RV3 | H-1 C | | |
| IC16 | J-2 C | RV4 | F-4 C | | |
| IC17 | G-4 C | RV5 | F-1 C | | |
| IC18 | G-4 C | RV6 | G-2 C | | |

*- C: COMPONENT SIDE
*- S: SOLDERING SIDE



SV-108A - COMPONENT SIDE -
1-629-244-21, 22
VO-8800P

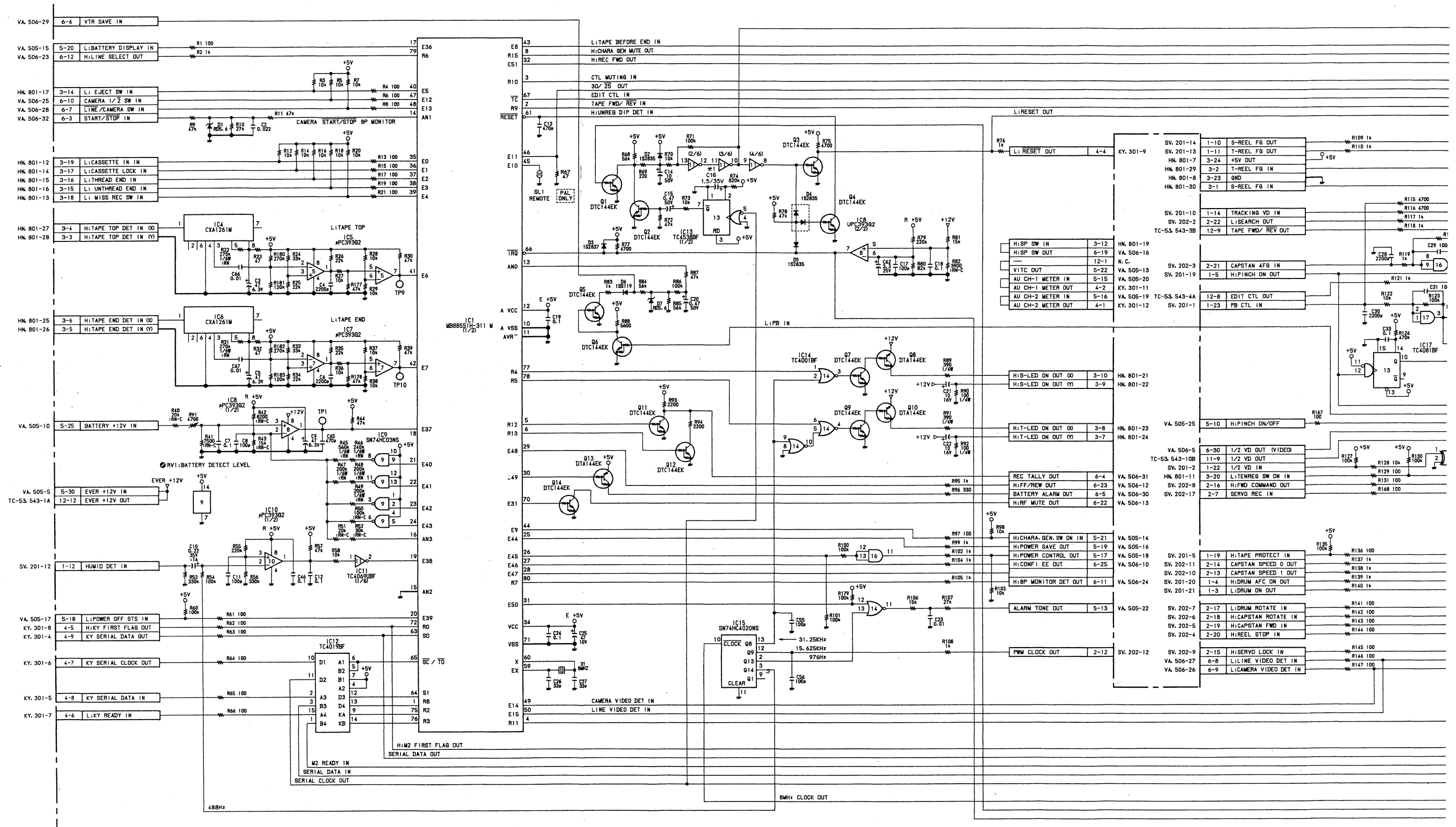


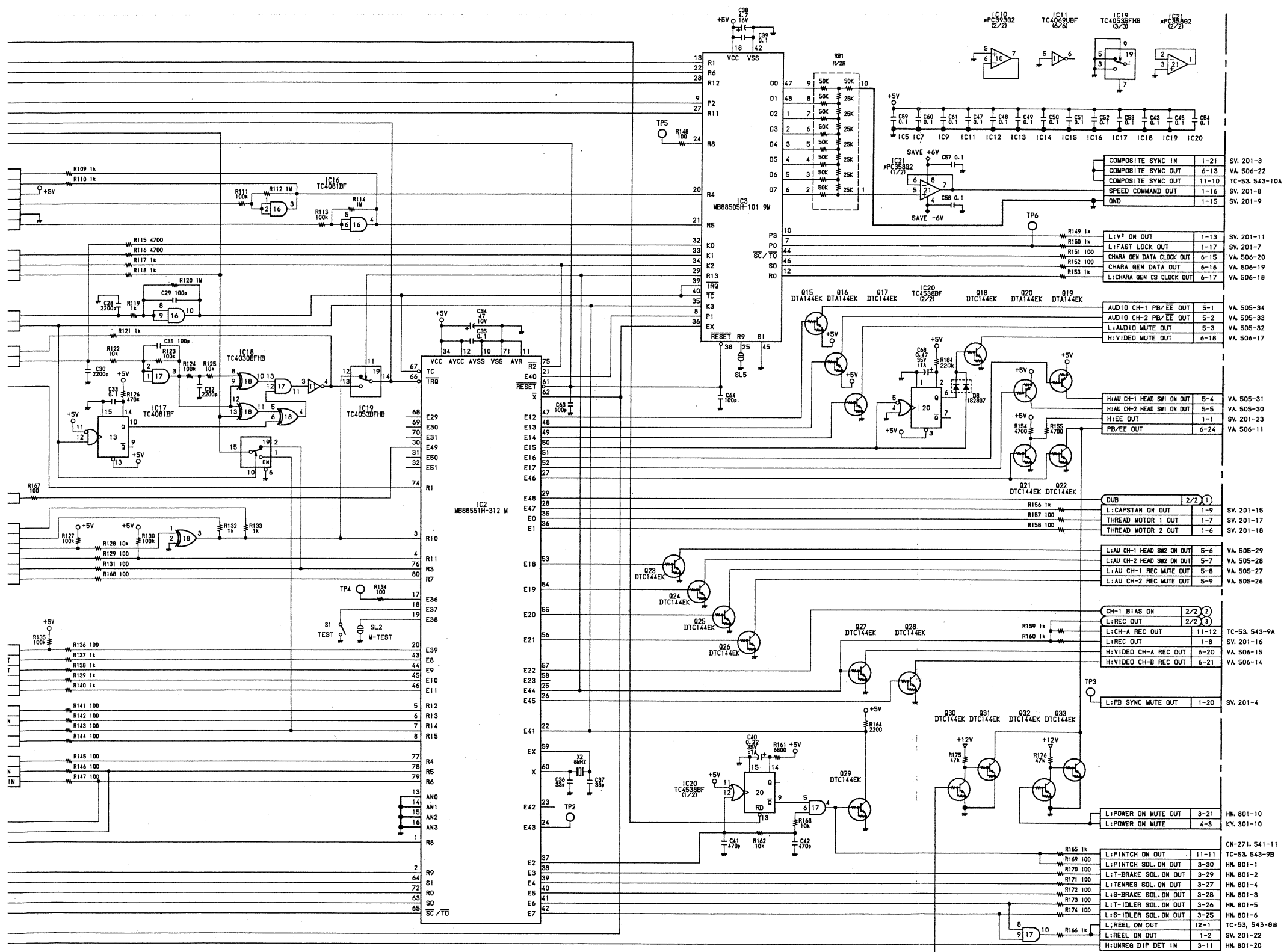
SV-108A - SOLDERING SIDE -
1-629-244-21, 22
VO-8800P

SY - 131A (1/2) : SYSTEM CONTROL

NOTE

| MARK | CHANGE INFORMATION | SERIAL NO. |
|------|--------------------|-------------|
| #1 | C16 0.1 → 1.5/35V | S/N 11451 ~ |





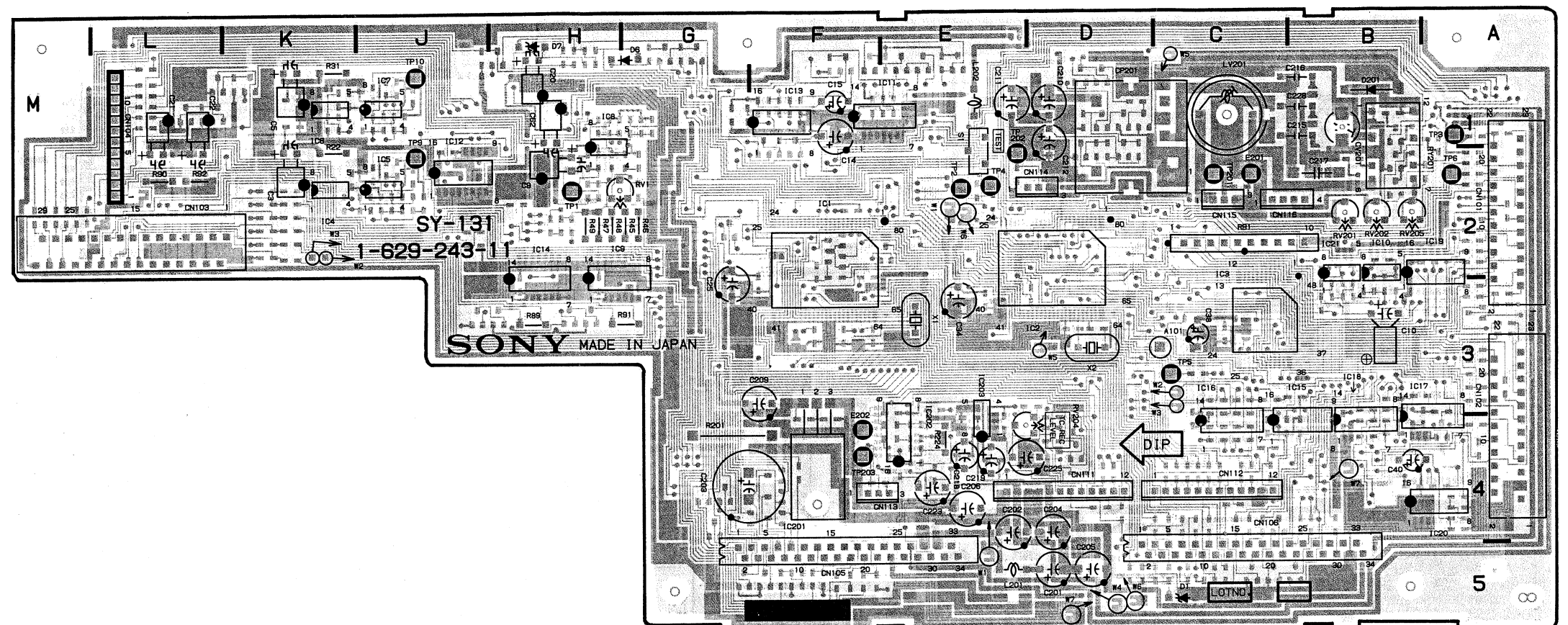
SY-131A (1/2)
1-629-243-11,12,13,14
VO-8800P

SY - 131A : SYSTEM CONTROL
ERASE/BIAS OSCILLATOR
TIME CODE REC/PB AMPLIFIER

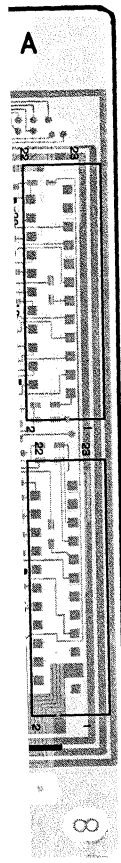
S/N 10001 through 10300

SY-131A (1-629-243-11)

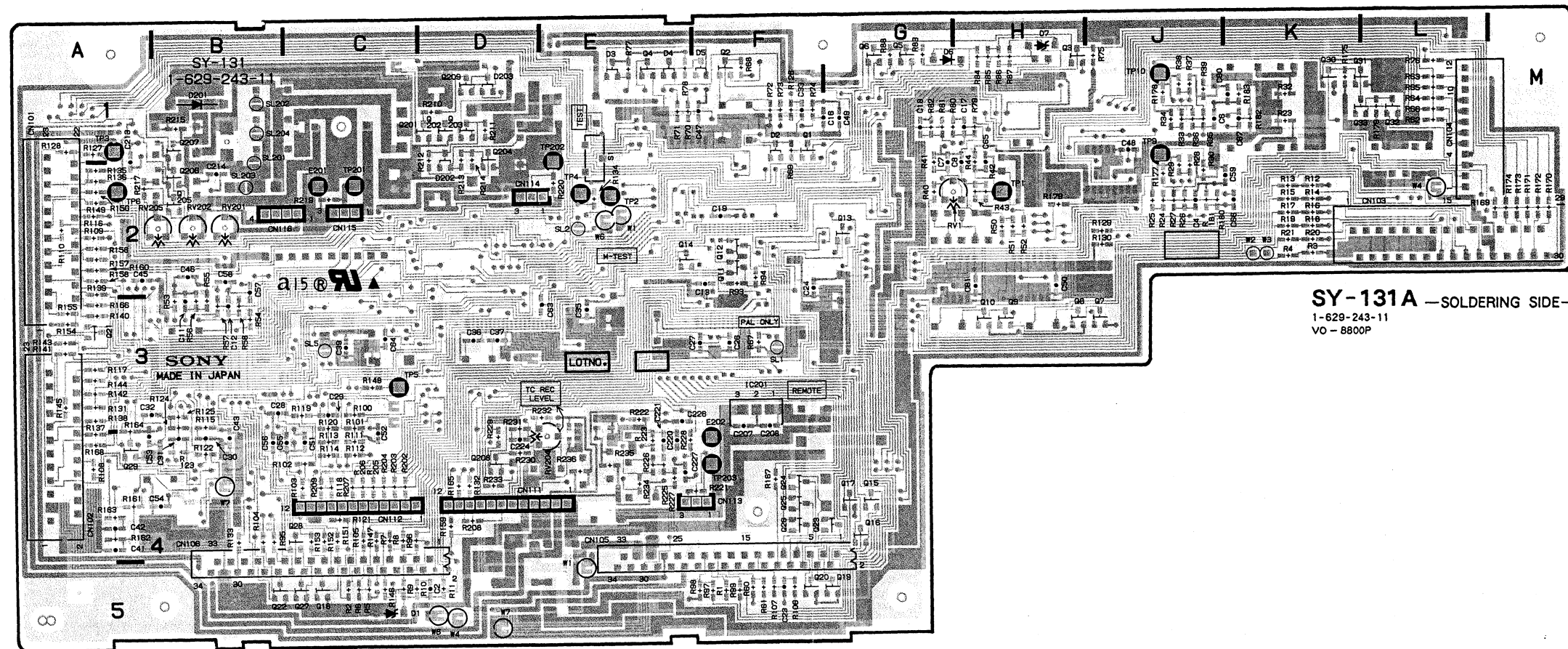
| | | | |
|-------|-------|----------------------|-------|
| CN101 | A-2 C | Q16 | G-5 S |
| CN102 | A-3 C | Q17 | G-4 S |
| CN103 | L-2 C | Q18 | C-5 S |
| CN104 | L-1 S | Q19 | G-5 S |
| CN105 | F-5 C | Q20 | F-5 S |
| CN106 | C-4 C | Q21 | A-3 S |
| CN111 | D-4 C | Q22 | B-5 S |
| CN112 | C-4 C | Q23 | F-4 S |
| CN113 | F-4 C | Q24 | F-4 S |
| CN114 | D-2 C | Q25 | F-4 S |
| CN115 | C-2 C | Q26 | F-4 S |
| CN116 | C-2 C | Q27 | C-5 S |
| CP201 | D-1 C | Q28 | C-4 S |
| CV201 | B-2 C | Q29 | A-4 S |
| D1 | C-5 C | Q30 | K-1 S |
| D2 | F-1 S | Q31 | K-1 S |
| D3 | E-1 S | Q32 | L-1 S |
| D4 | E-1 S | Q33 | K-1 S |
| D5 | F-1 S | Q201 | C-1 S |
| D6 | G-1 C | Q202 | D-1 S |
| D7 | H-1 C | Q203 | D-1 S |
| D201 | B-1 C | Q204 | D-1 S |
| D202 | D-2 S | Q205 | B-2 S |
| D203 | D-1 S | Q206 | B-2 S |
| | | Q207 | B-1 S |
| | | Q208 | D-4 S |
| | | Q209 | D-1 S |
| E201 | C-2 C | RV1 | G-2 C |
| E202 | F-4 C | RV201 | B-2 C |
| | | RV202 | B-2 C |
| | | RV204 | D-4 C |
| | | RV205 | B-2 C |
| IC1 | F-2 C | S1 | E-1 C |
| IC2 | D-3 C | | |
| IC3 | C-2 C | | |
| IC4 | K-2 C | | |
| IC5 | J-2 C | | |
| IC6 | K-1 C | TP1 | H-2 C |
| IC7 | J-1 C | TP2 | E-2 C |
| IC8 | H-1 C | TP3 | A-1 C |
| IC9 | H-2 C | TP4 | E-2 C |
| IC10 | B-2 C | TP5 | C-3 C |
| IC11 | E-1 C | TP6 | A-2 C |
| IC12 | J-1 C | TP9 | J-1 C |
| IC13 | F-1 C | TP10 | J-1 C |
| IC14 | H-2 C | TP201 | C-2 C |
| IC15 | B-3 C | TP202 | E-1 C |
| IC16 | C-3 C | TP203 | F-4 C |
| IC17 | B-3 C | | |
| IC18 | B-3 C | | |
| IC19 | A-2 C | X1 | E-3 C |
| IC20 | A-4 C | X2 | D-3 C |
| IC21 | B-2 C | | |
| IC201 | F-4 C | | |
| IC202 | E-3 C | ** C; COMPONENT SIDE | |
| IC203 | E-3 C | ** S; SOLDERING SIDE | |
| LV201 | C-1 C | | |
| Q1 | F-1 S | | |
| Q2 | F-1 S | | |
| Q3 | H-1 S | | |
| Q4 | E-1 S | | |
| Q5 | G-1 S | | |
| Q6 | G-1 S | | |
| Q7 | J-3 S | | |
| Q8 | H-3 S | | |
| Q9 | H-3 S | | |
| Q10 | H-3 S | | |
| Q11 | F-2 S | | |
| Q12 | F-2 S | | |
| Q13 | G-2 S | | |
| Q14 | E-2 S | | |
| Q15 | G-4 S | | |



SY-131A —COMPONENT SIDE—
1-629-243-11
VO - 8800P



NT SIDE—



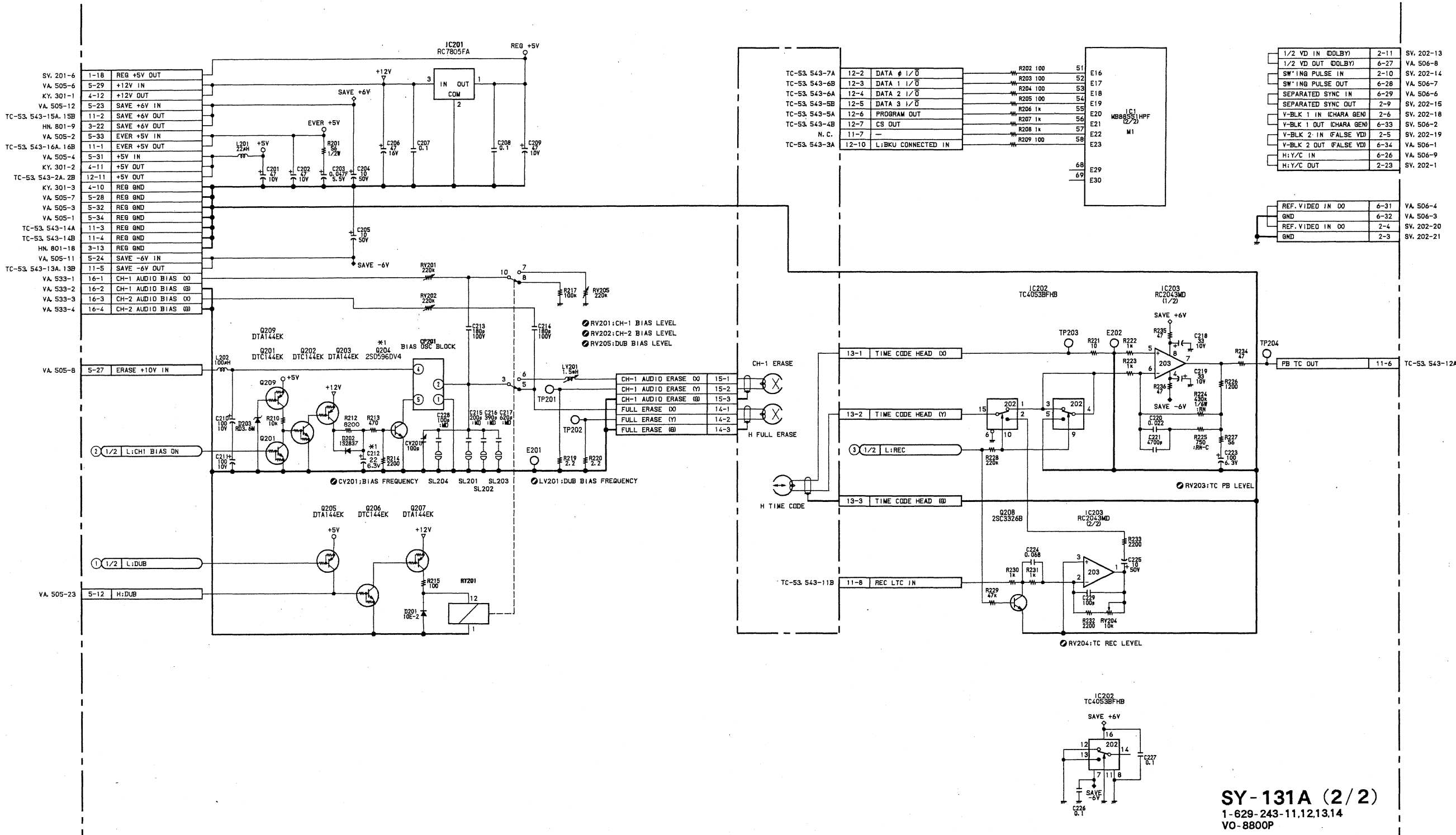
SY-131A —SOLDERING SIDE—
1-629-243-11
VO - 8800P

SY - 131A (2/2) : ERASE/BIAS OSCILLATOR

TIME CODE REC/PB AMPLIFIER

NOTE

| MARK | CHANGE INFORMATION | SERIAL NO. |
|------|---|-------------|
| #1 | C212 10/50V → 22/6.3V Q204 2SC2712-G → 2SD596DV4 | S/N 10651 ~ |



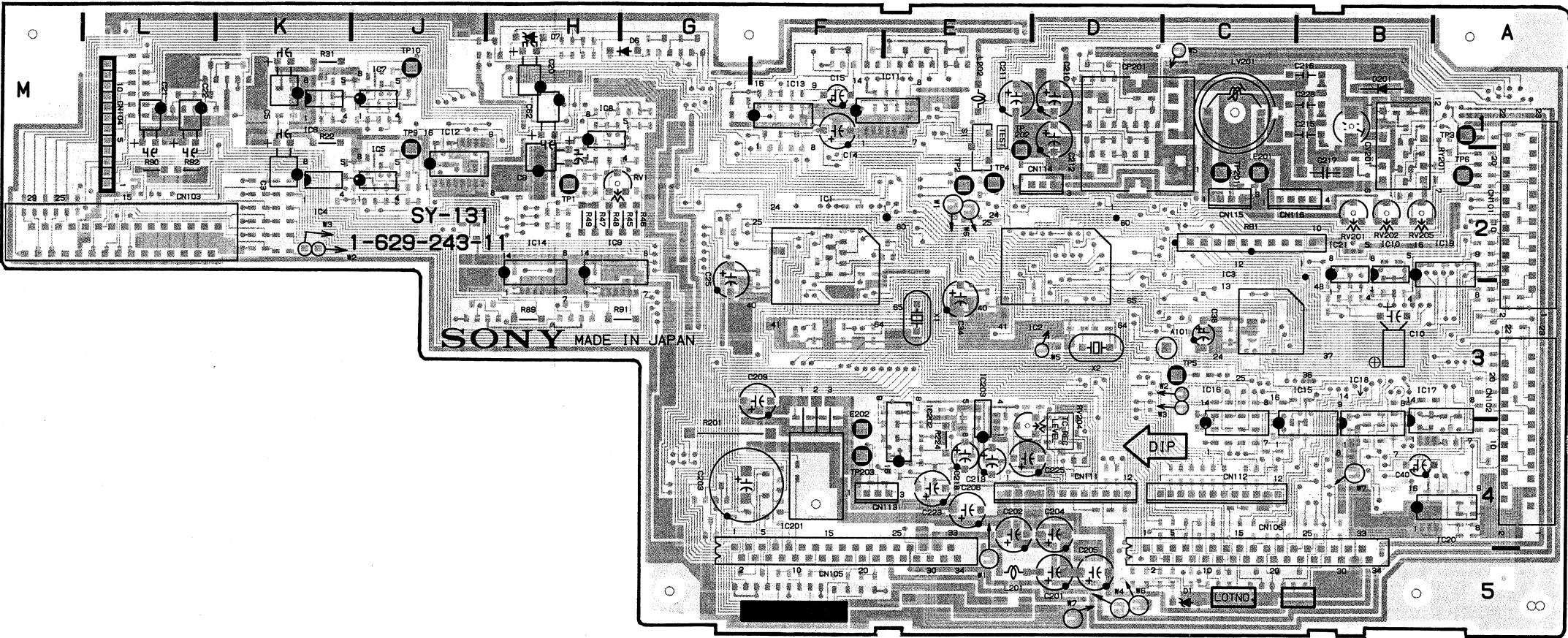
SY - 131A : SYSTEM CONTROL
ERASE/BIAS OSCILLATOR
TIME CODE REC/PB AMPLIFIER

S/N 10001 through 10300

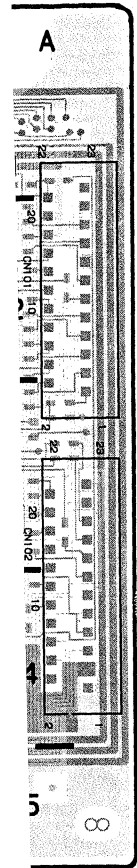
SY-131A (1-629-243-11)

| | | | |
|-------|-------|-------|-------|
| CN101 | A-2 C | Q16 | G-5 S |
| CN102 | A-3 C | Q17 | G-4 S |
| CN103 | L-2 C | Q18 | C-5 S |
| CN104 | L-1 S | Q19 | G-5 S |
| CN105 | F-5 C | Q20 | F-5 S |
| CN106 | C-4 C | Q21 | A-3 S |
| CN111 | D-4 C | Q22 | B-5 S |
| CN112 | C-4 C | Q23 | F-4 S |
| CN113 | F-4 C | Q24 | F-4 S |
| CN114 | D-2 C | Q25 | F-4 S |
| CN115 | C-2 C | Q26 | F-4 S |
| CN116 | C-2 C | Q27 | C-5 S |
| CP201 | D-1 C | Q28 | C-4 S |
| CV201 | B-2 C | Q29 | A-4 S |
| | | Q30 | K-1 S |
| | | Q31 | K-1 S |
| | | Q32 | L-1 S |
| | | Q33 | K-1 S |
| D1 | C-5 C | Q201 | C-1 S |
| D2 | F-1 S | Q202 | D-1 S |
| D3 | E-1 S | Q203 | D-1 S |
| D4 | E-1 S | Q204 | D-1 S |
| D5 | F-1 S | Q205 | B-2 S |
| D6 | G-1 C | Q206 | B-2 S |
| D7 | H-1 C | Q207 | B-1 S |
| D201 | B-1 C | Q208 | D-4 S |
| D202 | D-2 S | Q209 | D-1 S |
| D203 | D-1 S | | |
| E201 | C-2 C | RV1 | G-2 C |
| E202 | F-4 C | RV201 | B-2 C |
| | | RV202 | B-2 C |
| | | RV204 | D-4 C |
| | | RV205 | B-2 C |
| IC1 | F-2 C | S1 | E-1 C |
| IC2 | D-3 C | | |
| IC3 | C-2 C | | |
| IC4 | K-2 C | | |
| IC5 | J-2 C | | |
| IC6 | K-1 C | TP1 | H-2 C |
| IC7 | J-1 C | TP2 | E-2 C |
| IC8 | H-1 C | TP3 | A-1 C |
| IC9 | H-2 C | TP4 | E-2 C |
| IC10 | B-2 C | TP5 | C-3 C |
| IC11 | E-1 C | TP6 | A-2 C |
| IC12 | J-1 C | TP9 | J-1 C |
| IC13 | F-1 C | TP10 | J-1 C |
| IC14 | H-2 C | TP201 | C-2 C |
| IC15 | B-3 C | TP202 | E-1 C |
| IC16 | C-3 C | TP203 | F-4 C |
| IC17 | B-3 C | | |
| IC18 | B-3 C | X1 | E-3 C |
| IC19 | A-2 C | X2 | D-3 C |
| IC20 | A-4 C | | |
| IC21 | B-2 C | | |
| IC201 | F-4 C | | |
| IC202 | E-3 C | | |
| IC203 | E-3 C | | |
| LV201 | C-1 C | | |
| Q1 | F-1 S | | |
| Q2 | F-1 S | | |
| Q3 | H-1 S | | |
| Q4 | E-1 S | | |
| Q5 | G-1 S | | |
| Q6 | G-1 S | | |
| Q7 | J-3 S | | |
| Q8 | H-3 S | | |
| Q9 | H-3 S | | |
| Q10 | H-3 S | | |
| Q11 | F-2 S | | |
| Q12 | F-2 S | | |
| Q13 | G-2 S | | |
| Q14 | E-2 S | | |
| Q15 | G-4 S | | |

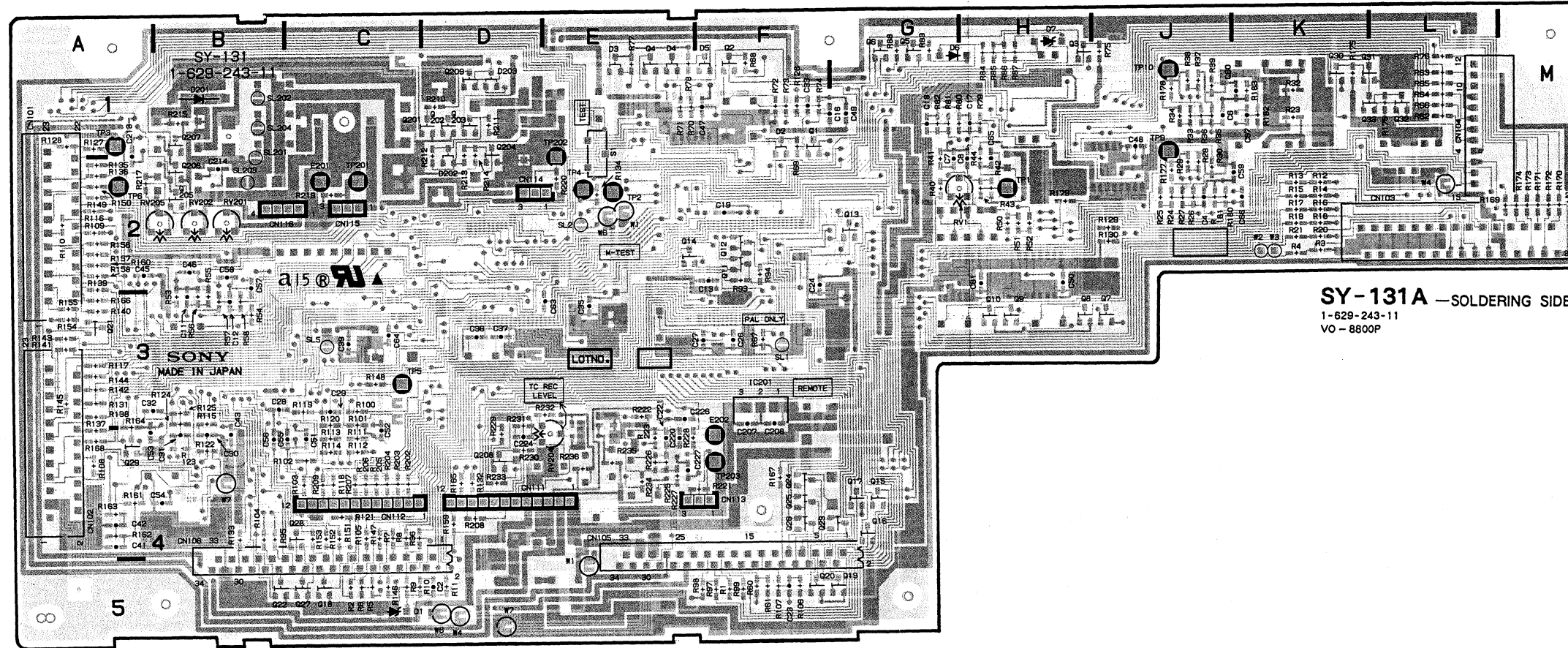
** C; COMPONENT SIDE
** S; SOLDERING SIDE



SY-131A — COMPONENT SIDE—
1-629-243-11
VO - 8800P



ENT SIDE—



SY-131A —SOLDERING SIDE—
1-629-243-11
VO - 8800P

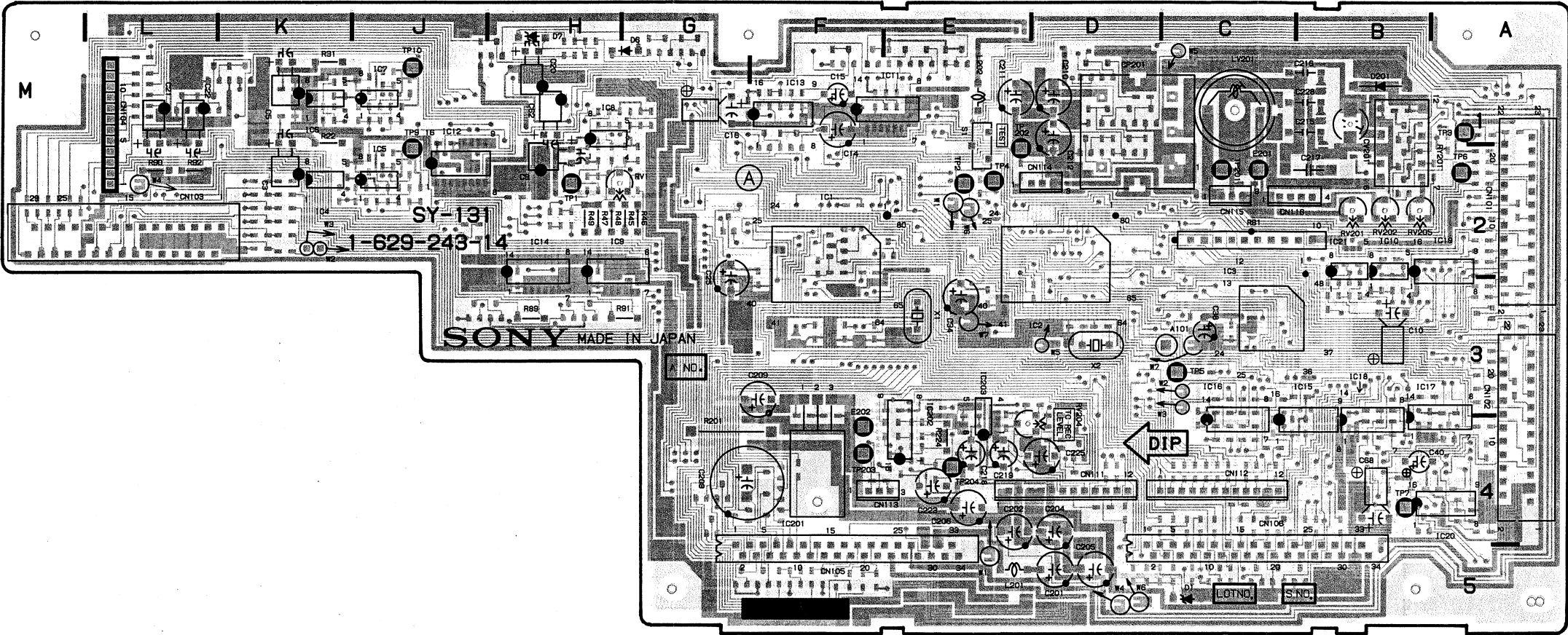
SY - 131A : SYSTEM CONTROL
ERASE/BIAS OSCILLATOR
TIME CODE REC/PB AMPLIFIER

S/N 10301 and higher

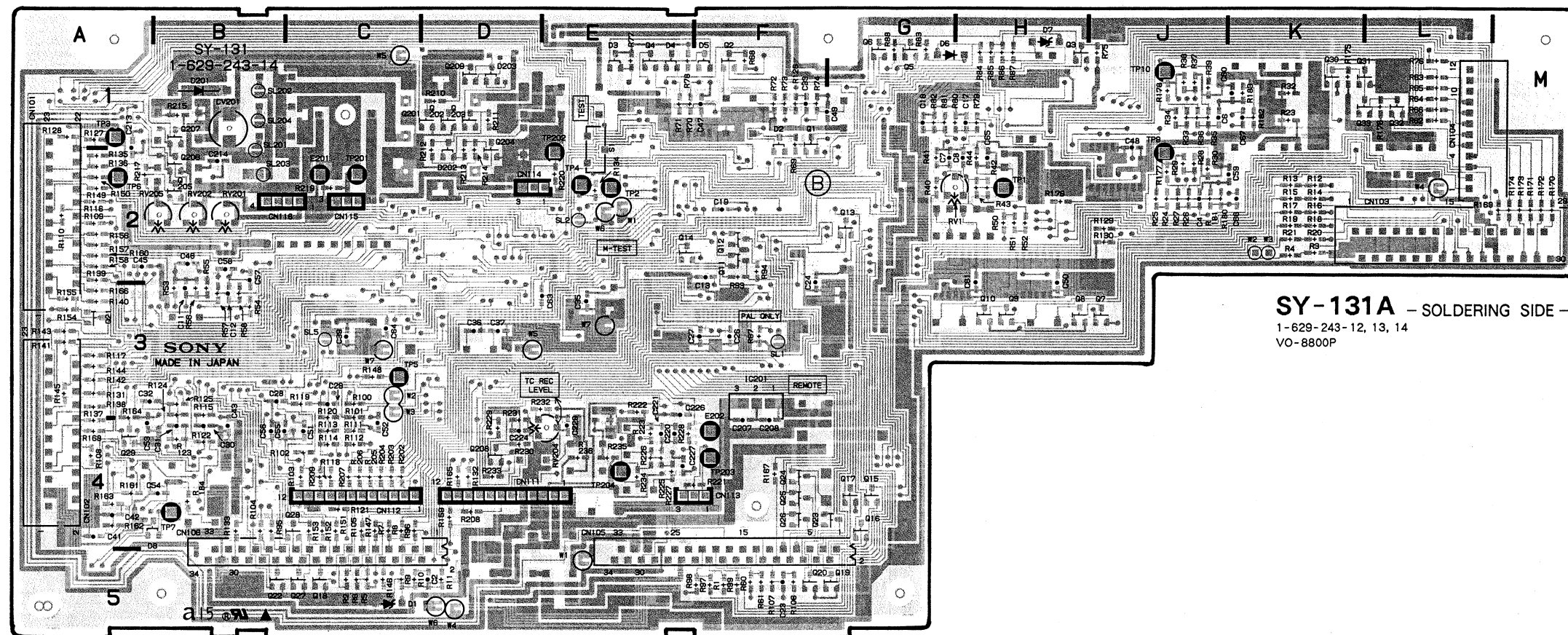
SY-131A (1-629-243-12, 13, 14)

| | | | |
|-------|-------|-------|-------|
| CN101 | A-2 C | Q15 | G-4 S |
| CN102 | A-3 C | Q16 | G-5 S |
| CN103 | L-2 C | Q17 | G-4 S |
| CN104 | L-1 S | Q18 | C-5 S |
| CN105 | F-5 C | Q19 | G-5 S |
| CN106 | C-4 C | Q20 | F-5 S |
| CN111 | D-4 C | Q21 | A-3 S |
| CN112 | C-4 C | Q22 | B-5 S |
| CN113 | F-4 C | Q23 | F-4 S |
| CN114 | D-2 C | Q24 | F-4 S |
| CN115 | C-2 C | Q25 | F-4 S |
| CN116 | C-2 C | Q26 | F-4 S |
| | | Q27 | C-5 S |
| CP201 | D-1 C | Q28 | C-4 S |
| | | Q29 | A-4 S |
| CV201 | B-2 C | Q30 | K-1 S |
| | | Q31 | K-1 S |
| D1 | C-5 C | Q32 | L-1 S |
| D2 | F-1 S | Q33 | K-1 S |
| D3 | E-1 S | Q201 | C-1 S |
| D4 | E-1 S | Q202 | D-1 S |
| D5 | F-1 S | Q203 | D-1 S |
| D6 | G-1 C | Q204 | D-1 S |
| D7 | H-1 C | Q205 | B-2 S |
| D8 | B-5 S | Q206 | B-2 S |
| D201 | B-1 C | Q207 | B-1 S |
| D202 | D-2 S | Q208 | D-4 S |
| D203 | D-1 S | Q209 | D-1 S |
| | | | |
| E201 | C-2 C | RB1 | C-2 C |
| E202 | F-4 C | | |
| | | RV1 | G-2 C |
| IC1 | F-2 C | RV201 | B-2 C |
| IC2 | D-3 C | RV202 | B-2 C |
| IC3 | C-2 C | RV204 | D-4 C |
| IC4 | K-2 C | RV205 | B-2 C |
| IC5 | J-2 C | | |
| IC6 | K-1 C | RY201 | A-2 C |
| IC7 | J-1 C | | |
| IC8 | H-1 C | S1 | E-1 C |
| IC9 | H-2 C | | |
| IC10 | B-2 C | TP1 | H-2 C |
| IC11 | E-1 C | TP2 | E-2 C |
| IC12 | J-1 C | TP3 | A-1 C |
| IC13 | F-1 C | TP4 | E-2 C |
| IC14 | H-2 C | TP5 | C-3 C |
| IC15 | B-3 C | TP6 | A-2 C |
| IC16 | C-3 C | TP7 | B-4 C |
| IC17 | B-3 C | TP9 | J-1 C |
| IC18 | B-3 C | TP10 | J-1 C |
| IC19 | A-2 C | TP201 | C-2 C |
| IC20 | A-4 C | TP202 | E-1 C |
| IC21 | B-2 C | TP203 | F-4 C |
| IC201 | F-4 C | TP204 | E-4 C |
| IC202 | E-3 C | | |
| IC203 | E-3 C | X1 | E-3 C |
| | | X2 | D-3 C |
| LV201 | C-1 C | | |
| | | | |
| Q1 | F-1 S | | |
| Q2 | F-1 S | | |
| Q3 | H-1 S | | |
| Q4 | E-1 S | | |
| Q5 | G-1 S | | |
| Q6 | C-1 S | | |
| Q7 | J-3 S | | |
| Q8 | H-3 S | | |
| Q9 | H-3 S | | |
| Q10 | H-3 S | | |
| Q11 | F-2 S | | |
| Q12 | F-2 S | | |
| Q13 | C-2 S | | |
| Q14 | E-2 S | | |

*-C; COMPONENT SIDE
*-S; SOLDERING SIDE

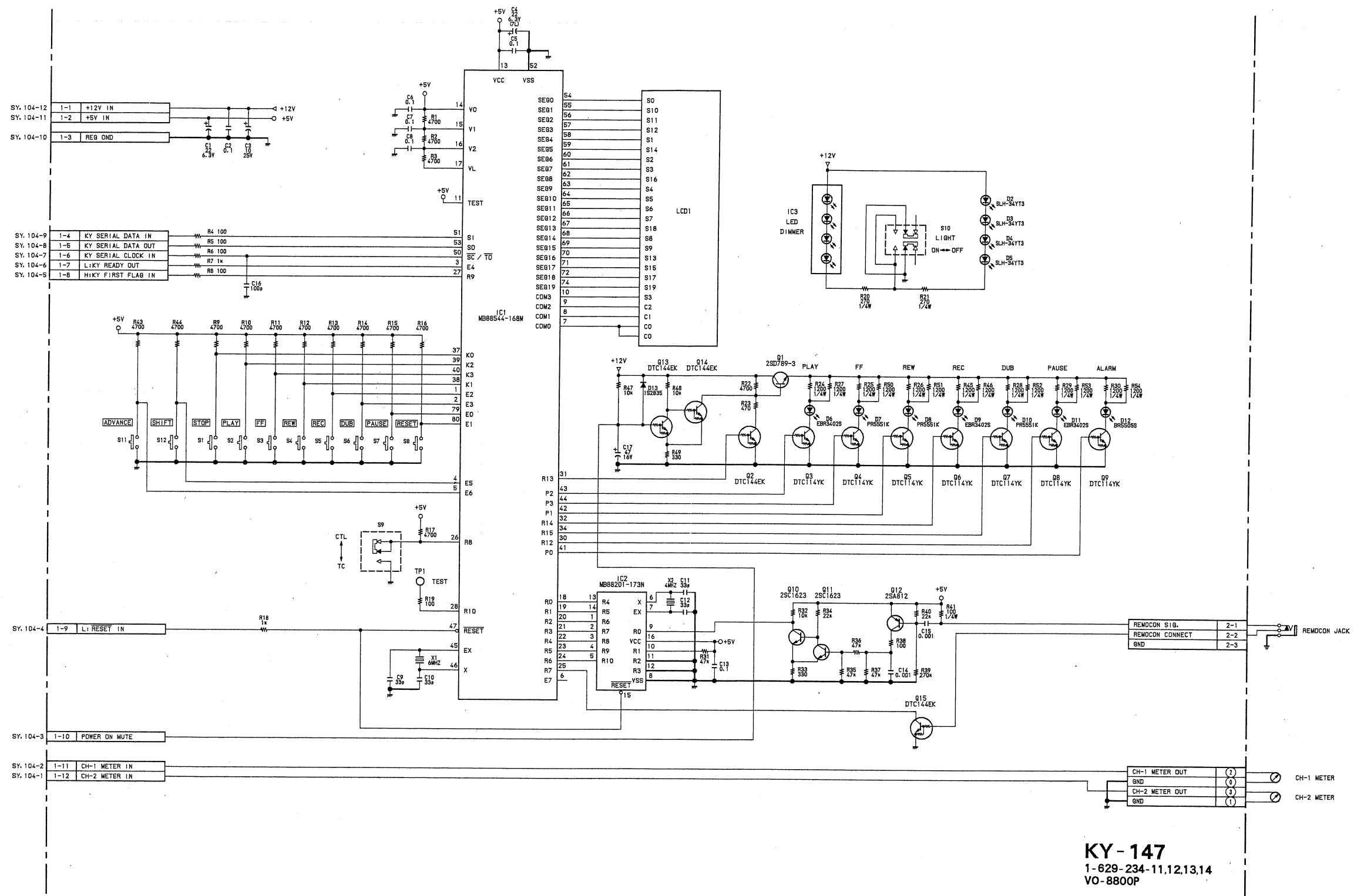


SY-131A - COMPONENT SIDE -
1-629-243-12, 13, 14
VO-8800P



SY-131A - SOLDERING SIDE -
1-629-243-12, 13, 14
VO-8800P

KY - 147 : FUNCTION KEY/LCD DISPLAY

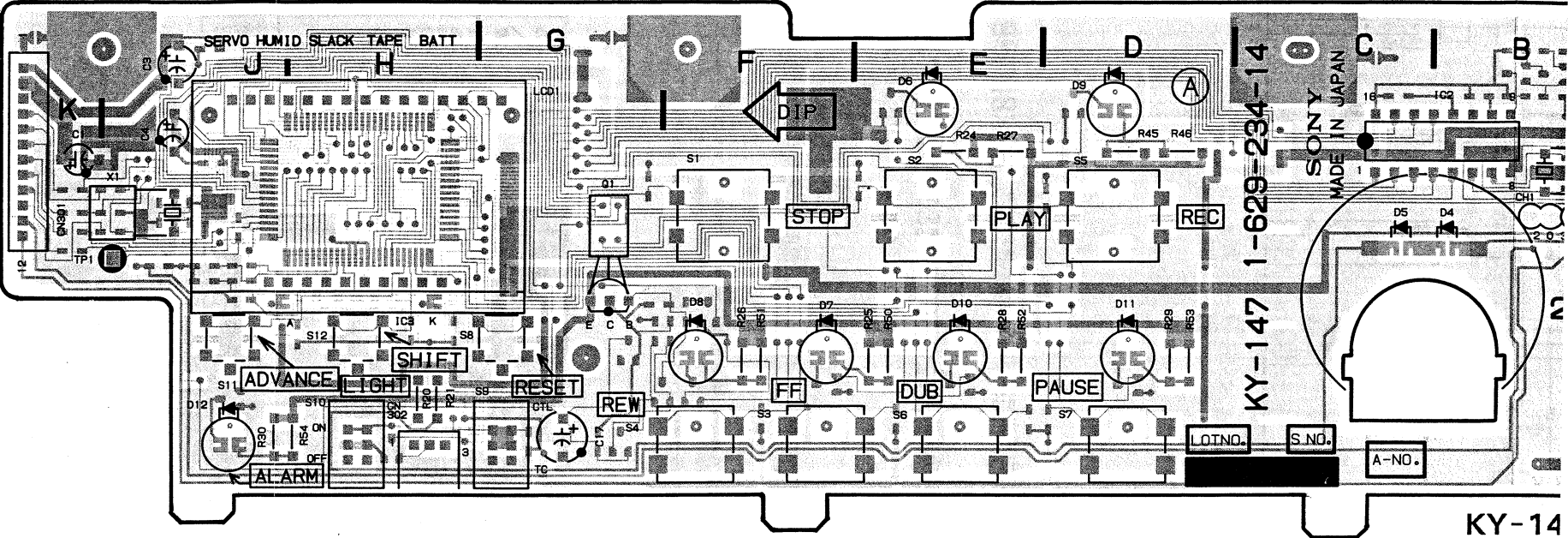


KY - 147 : FUNCTION KEY/LCD DISPLAY

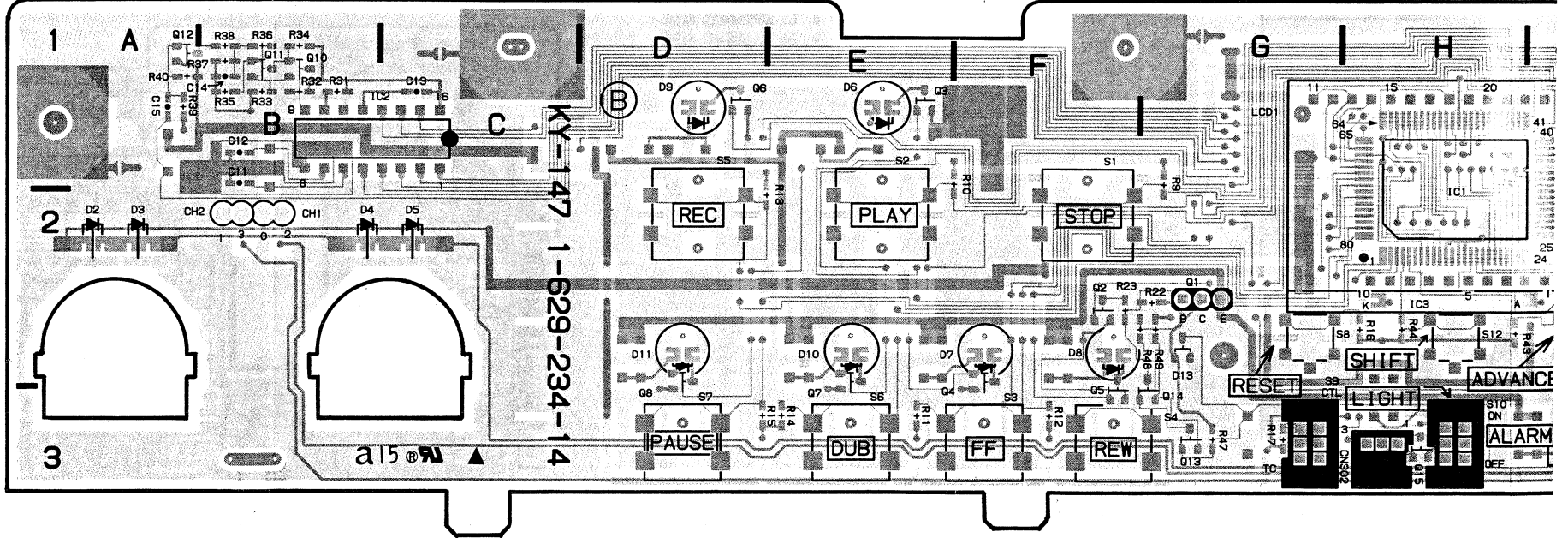
KY-147 (1-629-234-11, 12, 13, 14)

| | |
|-------|-------|
| CN301 | K-2 C |
| CN302 | H-3 C |
| D2 | A-2 C |
| D3 | A-2 C |
| D4 | B-2 C |
| D5 | C-2 C |
| D6 | E-1 C |
| D7 | F-2 C |
| D8 | F-2 C |
| D9 | D-1 C |
| D10 | E-2 C |
| D11 | D-2 C |
| D12 | J-3 C |
| D13 | G-2 S |
| IC1 | H-2 S |
| IC2 | B-1 C |
| IC3 | H-2 C |
| LCD1 | G-1 C |
| Q1 | G-1 C |
| Q2 | F-2 S |
| Q3 | E-1 S |
| Q4 | E-3 S |
| Q5 | F-3 S |
| Q6 | D-1 S |
| Q7 | E-3 S |
| Q8 | D-3 S |
| Q9 | J-3 S |
| Q10 | B-1 S |
| Q11 | B-1 S |
| Q12 | A-1 S |
| Q13 | G-3 S |
| Q14 | G-3 S |
| Q15 | H-3 S |
| S1 | F-1 C |
| S2 | E-1 C |
| S3 | F-3 C |
| S4 | G-3 C |
| S5 | D-1 C |
| S6 | E-3 C |
| S7 | D-3 C |
| S8 | H-2 C |
| S9 | G-3 C |
| S10 | H-3 C |
| S11 | J-2 C |
| S12 | H-2 C |
| TP1 | K-2 C |
| X1 | J-1 C |
| X2 | B-1 C |

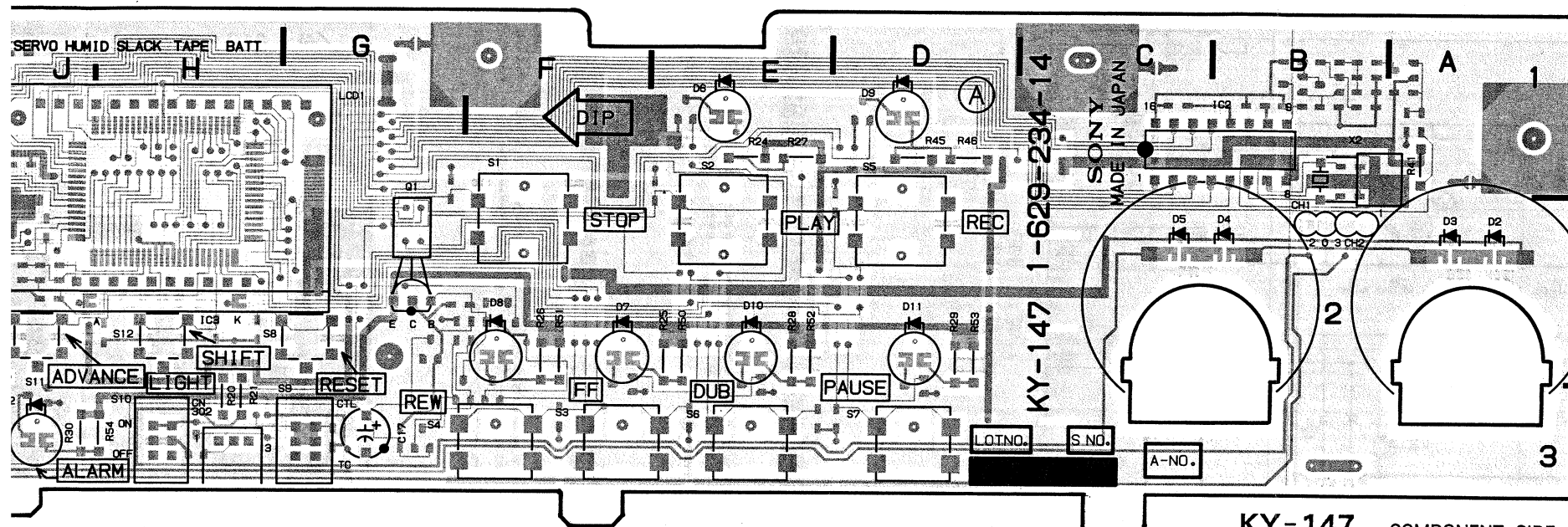
** C; COMPONENT SIDE
** S; SOLDERING SIDE



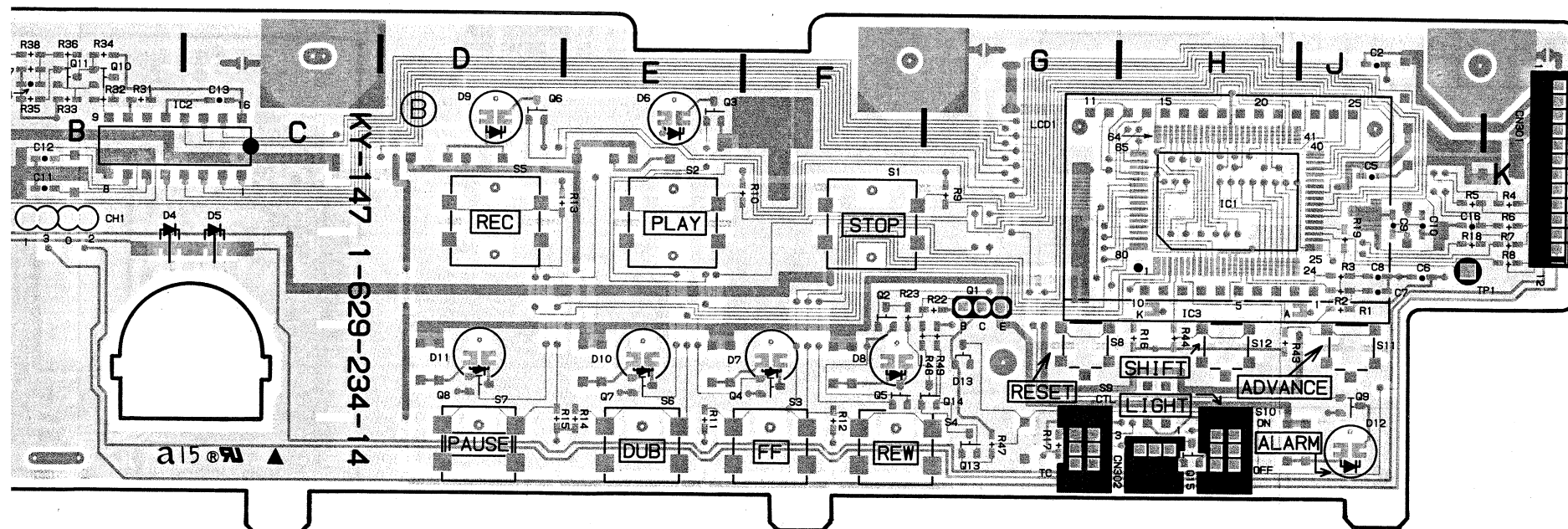
KY-14
1-629-234-11
VO-8800P



KY-1
1-629-234
VO-8800P

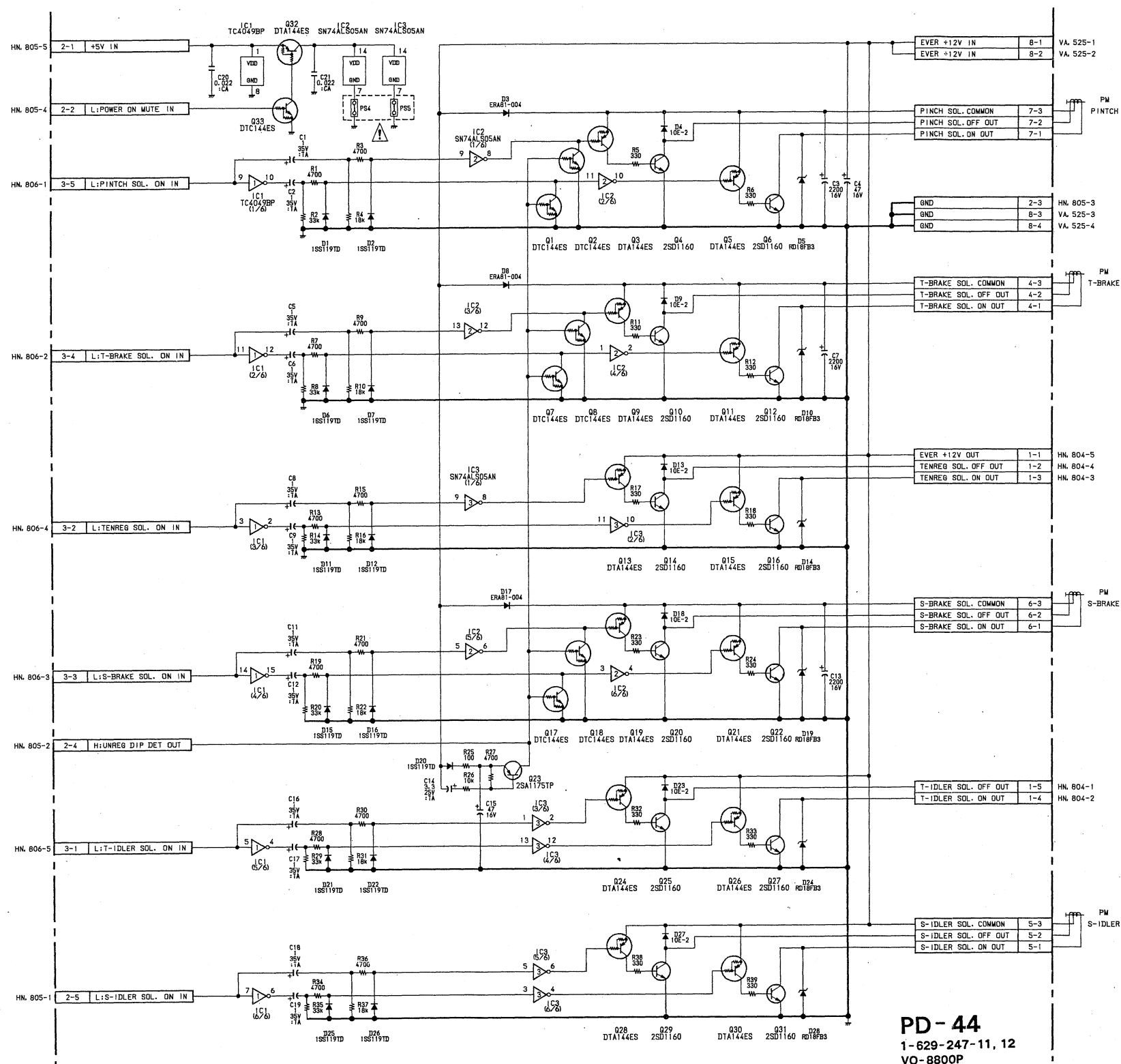


KY-147 - COMPONENT SIDE -
1-629-234-11, 12, 13, 14
VO-8800P



KY-147 - SOLDERING SIDE -
1-629-234-11, 12, 13, 14
VO-8800P

PD - 44 : SOLENOID DRIVER

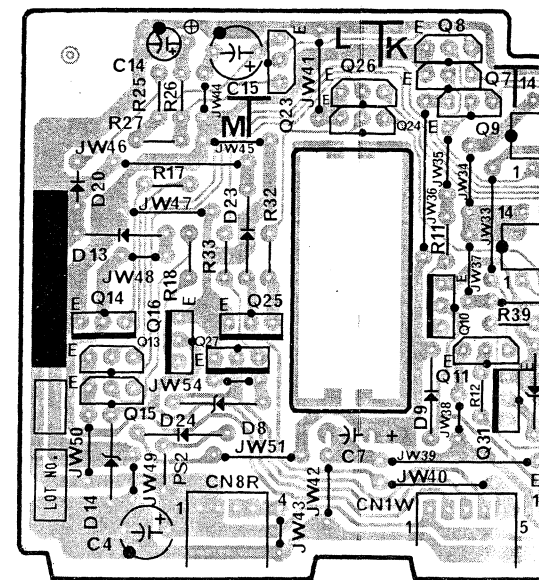


PD-44 (1-629-247-11,12)

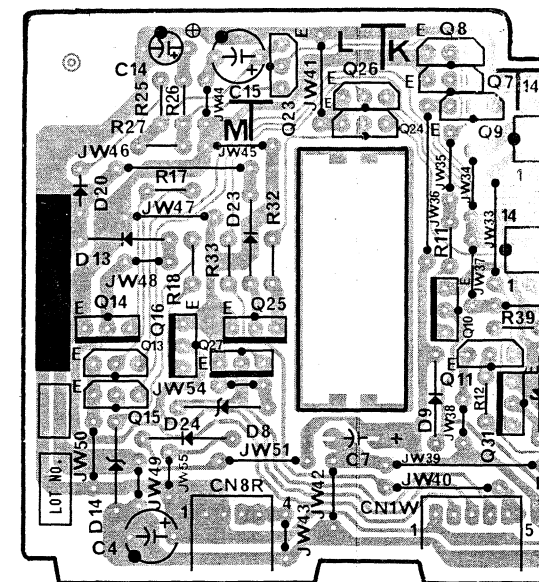
| | | | | | |
|-----|-----|---|-----|-----|---|
| CN1 | K-4 | C | IC1 | E-3 | C |
| CN2 | F-4 | C | IC2 | J-1 | C |
| CN3 | E-4 | C | IC3 | J-2 | C |
| CN4 | J-4 | C | | | |
| CN5 | G-4 | C | Q1 | D-1 | C |
| CN6 | C-4 | C | Q2 | C-1 | C |
| CN7 | B-4 | C | Q3 | C-1 | C |
| CN8 | M-4 | C | Q4 | C-2 | C |
| | | | Q5 | B-1 | C |
| | | | Q6 | A-2 | C |
| | | | Q7 | K-1 | C |
| | | | Q8 | K-1 | C |
| | | | Q9 | K-1 | C |
| | | | Q10 | K-3 | C |
| | | | Q11 | K-3 | C |
| | | | Q12 | J-4 | C |
| | | | Q13 | M-3 | C |
| | | | Q14 | M-3 | C |
| | | | Q15 | M-3 | C |
| | | | Q16 | M-3 | C |
| | | | Q17 | C-1 | C |
| | | | Q18 | A-4 | C |
| | | | Q19 | A-4 | C |
| | | | Q20 | B-2 | C |
| | | | Q21 | A-3 | C |
| | | | Q22 | A-2 | C |
| | | | Q23 | L-1 | C |
| | | | Q24 | K-1 | C |
| | | | Q25 | L-3 | C |
| | | | Q26 | L-1 | C |
| | | | Q27 | M-3 | C |
| | | | Q28 | H-3 | C |
| | | | Q29 | J-3 | C |
| | | | Q30 | J-3 | C |
| | | | Q31 | K-4 | C |
| | | | Q32 | E-4 | C |
| | | | Q33 | F-4 | C |

** C; COMPONENT SIDE
** S; SOLDERING SIDE

S/N 10001 through 10300



S/N 10301 and higher



NOTE:

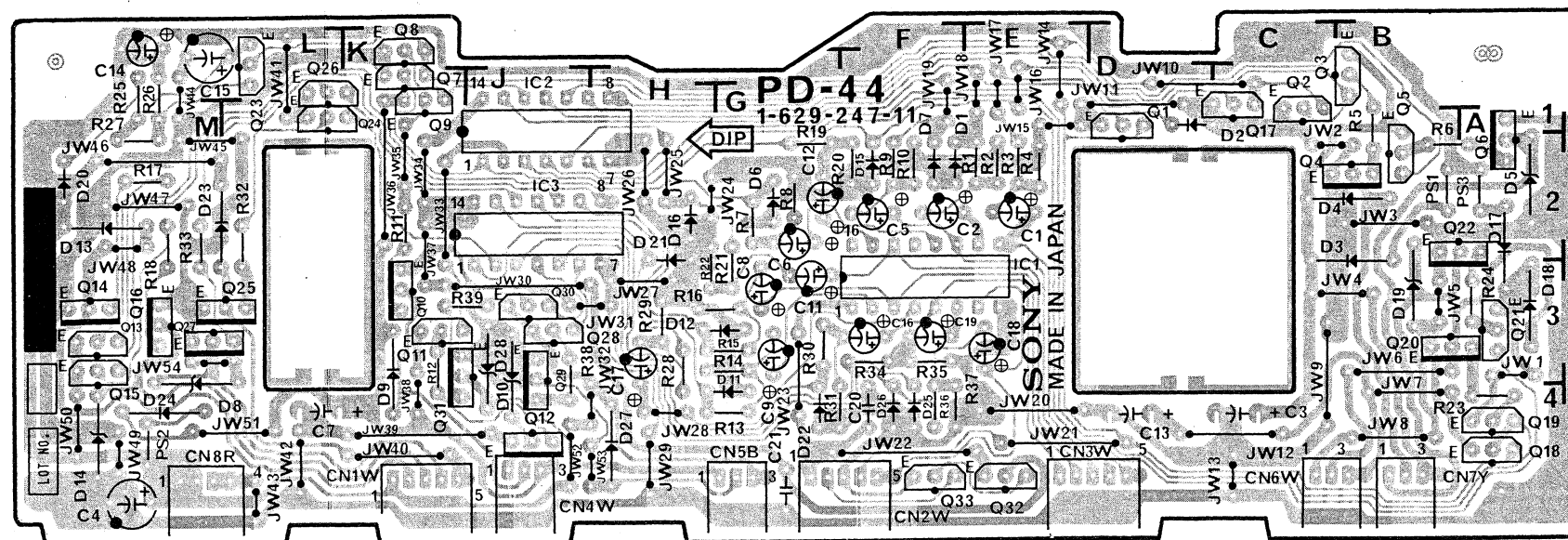
The Δ -marked components are critical to safety.
Replace only with same components as specified.

PD-44 (1-629-247-11,12)

| | | | | | |
|-----|-----|---|-----|-----|---|
| CN1 | K-4 | C | IC1 | E-3 | C |
| CN2 | F-4 | C | IC2 | J-1 | C |
| CN3 | E-4 | C | IC3 | J-2 | C |
| CN4 | J-4 | C | | | |
| CN5 | G-4 | C | Q1 | D-1 | C |
| CN6 | C-4 | C | Q2 | C-1 | C |
| CN7 | B-4 | C | Q3 | C-1 | C |
| CN8 | M-4 | C | Q4 | C-2 | C |
| | | | Q5 | B-1 | C |
| D1 | F-1 | C | Q6 | A-2 | C |
| D2 | C-1 | C | Q7 | K-1 | C |
| D3 | B-2 | C | Q8 | K-1 | C |
| D4 | B-2 | C | Q9 | K-1 | C |
| D5 | A-2 | C | Q10 | K-3 | C |
| D6 | G-2 | C | Q11 | K-3 | C |
| D7 | F-1 | C | Q12 | J-4 | C |
| D8 | L-4 | C | Q13 | M-3 | C |
| D9 | K-3 | C | Q14 | M-3 | C |
| D10 | J-4 | C | Q15 | M-3 | C |
| D11 | G-3 | C | Q16 | M-3 | C |
| D12 | H-3 | C | Q17 | C-1 | C |
| D13 | M-2 | C | Q18 | A-4 | C |
| D14 | M-4 | C | Q19 | A-4 | C |
| D15 | F-2 | C | Q20 | B-2 | C |
| D16 | H-2 | C | Q21 | A-3 | C |
| D17 | A-2 | C | Q22 | A-2 | C |
| D18 | A-3 | C | Q23 | L-1 | C |
| D19 | B-3 | C | Q24 | K-1 | C |
| D20 | M-2 | C | Q25 | L-3 | C |
| D21 | H-2 | C | Q26 | L-1 | C |
| D22 | G-4 | C | Q27 | M-3 | C |
| D23 | M-2 | C | Q28 | H-3 | C |
| D24 | M-4 | C | Q29 | J-3 | C |
| D25 | F-4 | C | Q30 | J-3 | C |
| D26 | F-4 | C | Q31 | K-4 | C |
| D27 | H-4 | C | Q32 | B-4 | C |
| D28 | J-3 | C | Q33 | F-4 | C |

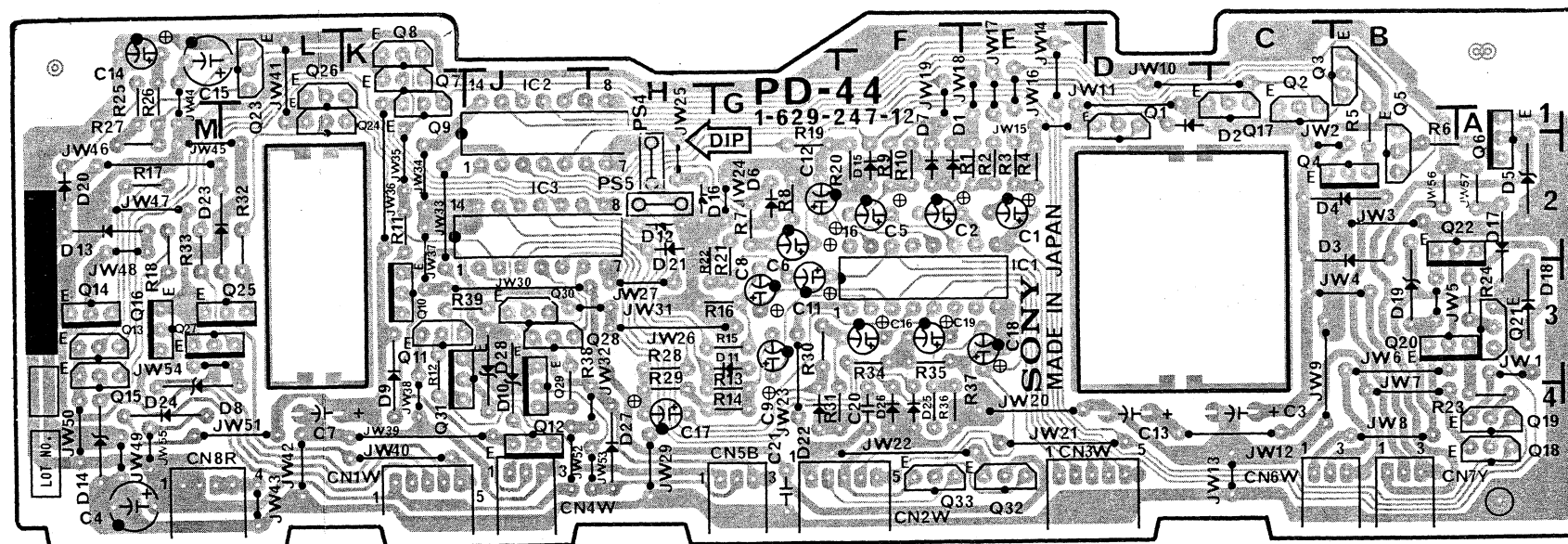
** C; COMPONENT SIDE
** S; SOLDERING SIDE

S/N 10001 through 10300



PD-44 —COMPONENT SIDE—
1-629-247-11
VO - 8800P

S/N 10301 and higher

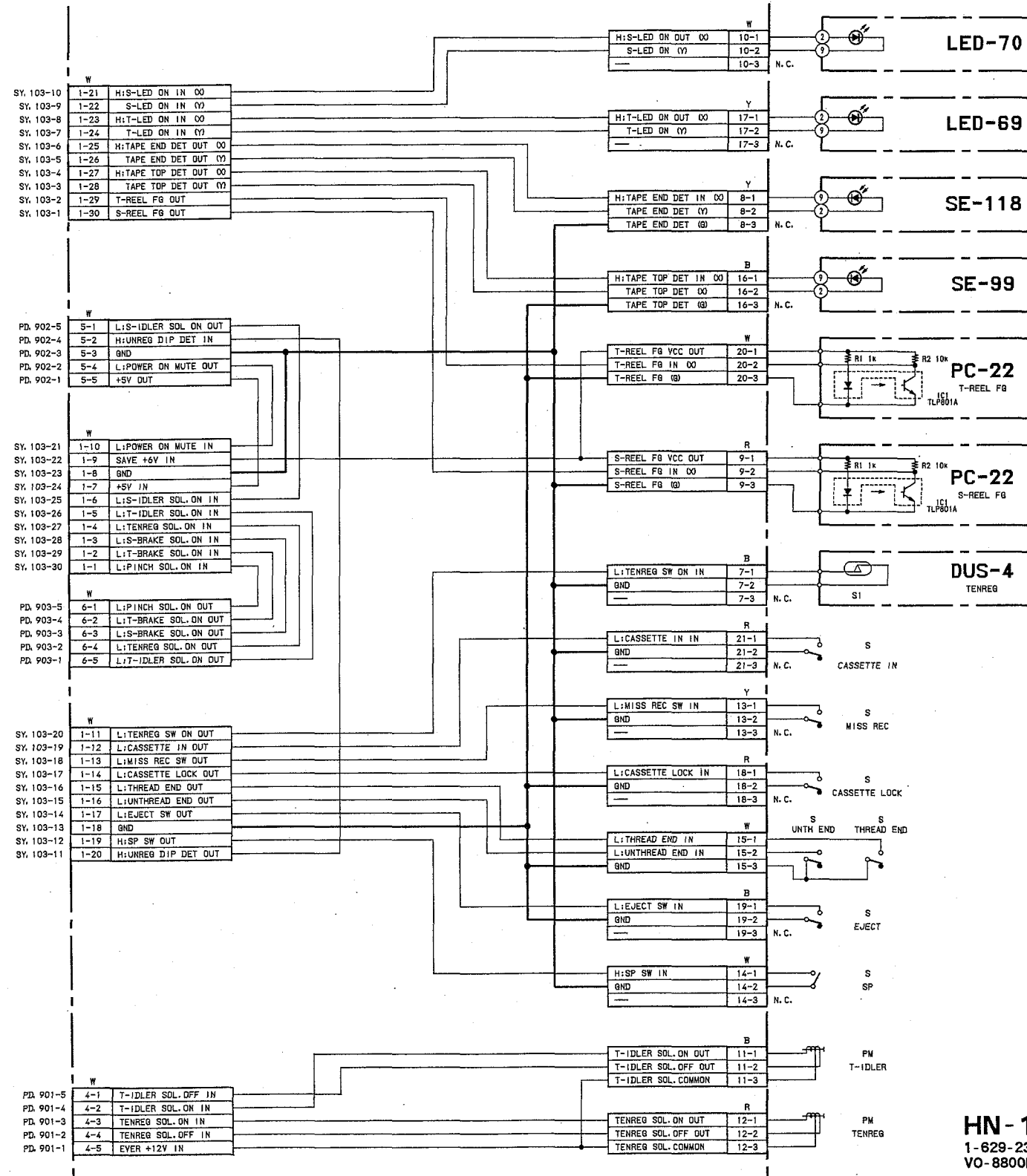


PD-44 —COMPONENT SIDE—
1-629-247-12
VO - 8800P

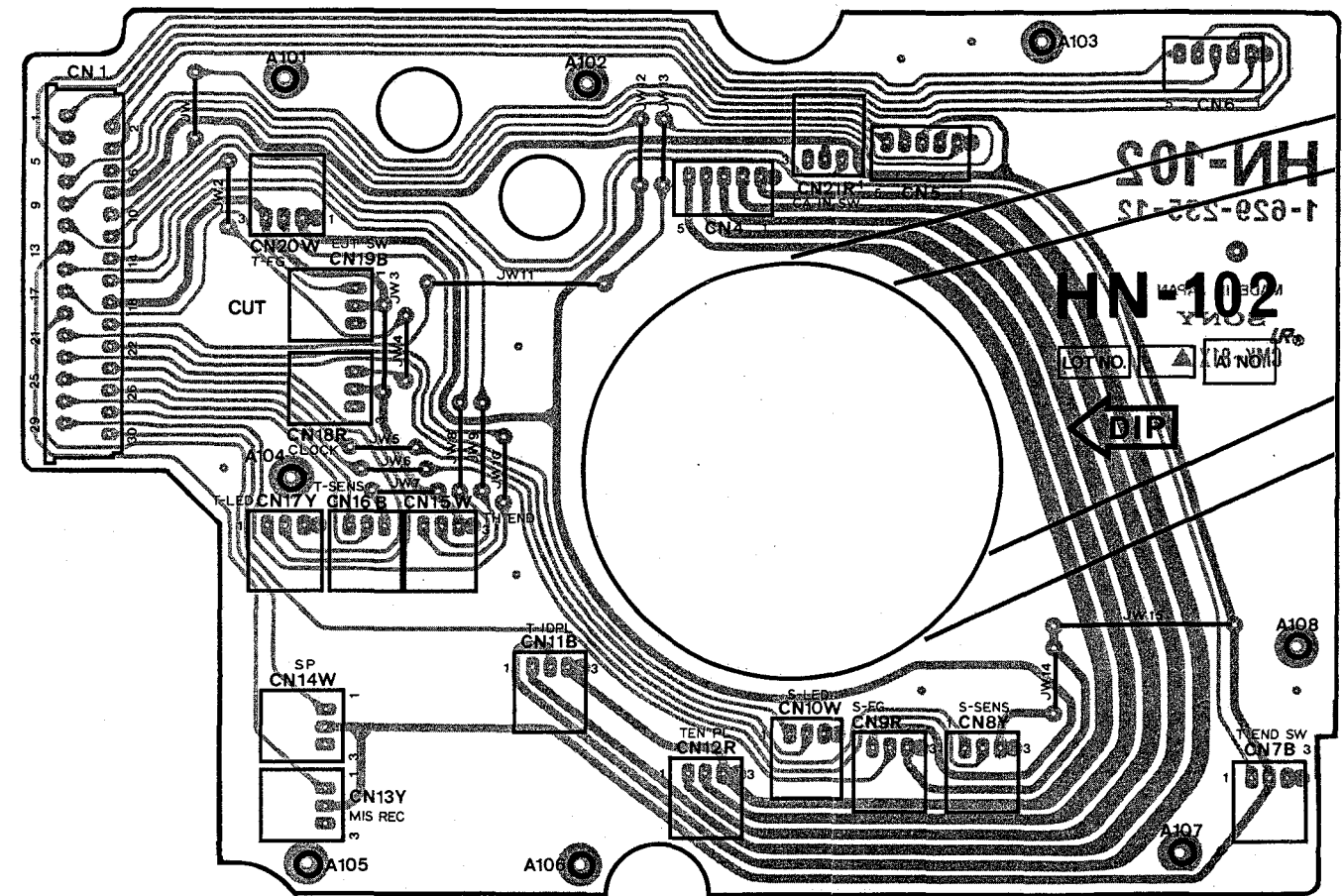
NOTE:

The Δ -marked components are critical to safety.
Replace only with same components as specified.

HN - 102 : CONNECTION



HN - 102
1-629-235-11.12
VO-8800P



HN-102 - COMPONENT SIDE -
1-629-235-11, 12
VO-8800P

BP - 15 : CONNECTION

BP - 16 : BATTERY CASE

CM - 23 : CAMERA CONTROL, CAMERA IN/OUT, CAMERA MIC INPUT SELECT

CN - 271 : CONNECTION

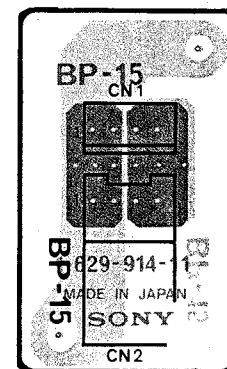
DU - 58 : AUDIO R/P HEAD, ERASE HEAD, CTL R/P HEAD

DUS - 262 : CONNECTION

HP - 45 : PHONE LEVEL

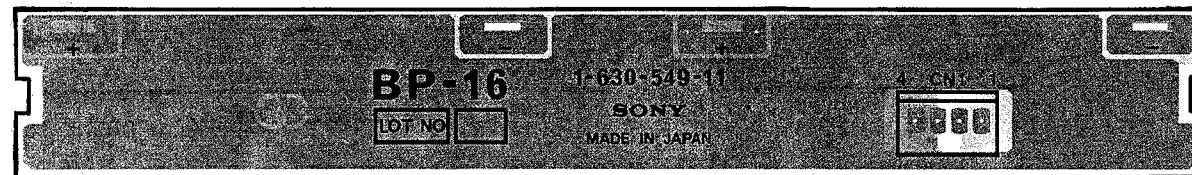
TR - 54 : SAVE +10V

S/N 10001 through 10300

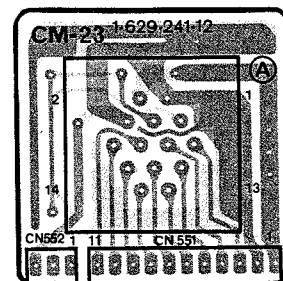


BP-15 —COMPONENT SIDE—
1-629-914-11
VO - 8800P

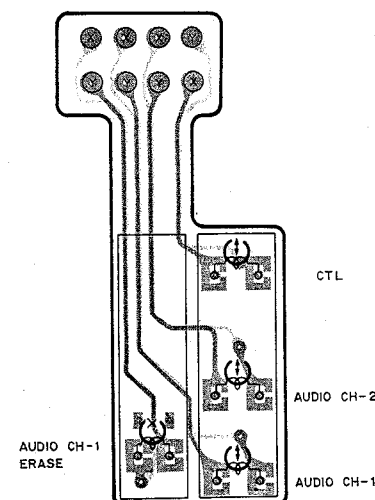
S/N 10301 and higher



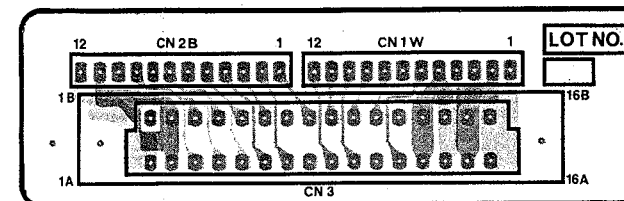
BP-16 —COMPONENT SIDE—
1-630-549-11
VO - 8800P



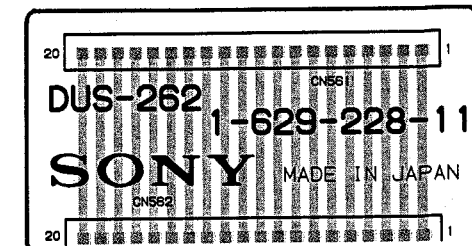
CM-23 —COMPONENT SIDE—
1-629-241-11, 12
VO-8800P



DU-58 —SOLDERING SIDE—
1-611-954-11
VO - 8800P



CN-271 —COMPONENT SIDE—
1-629-248-11
VO - 8800P



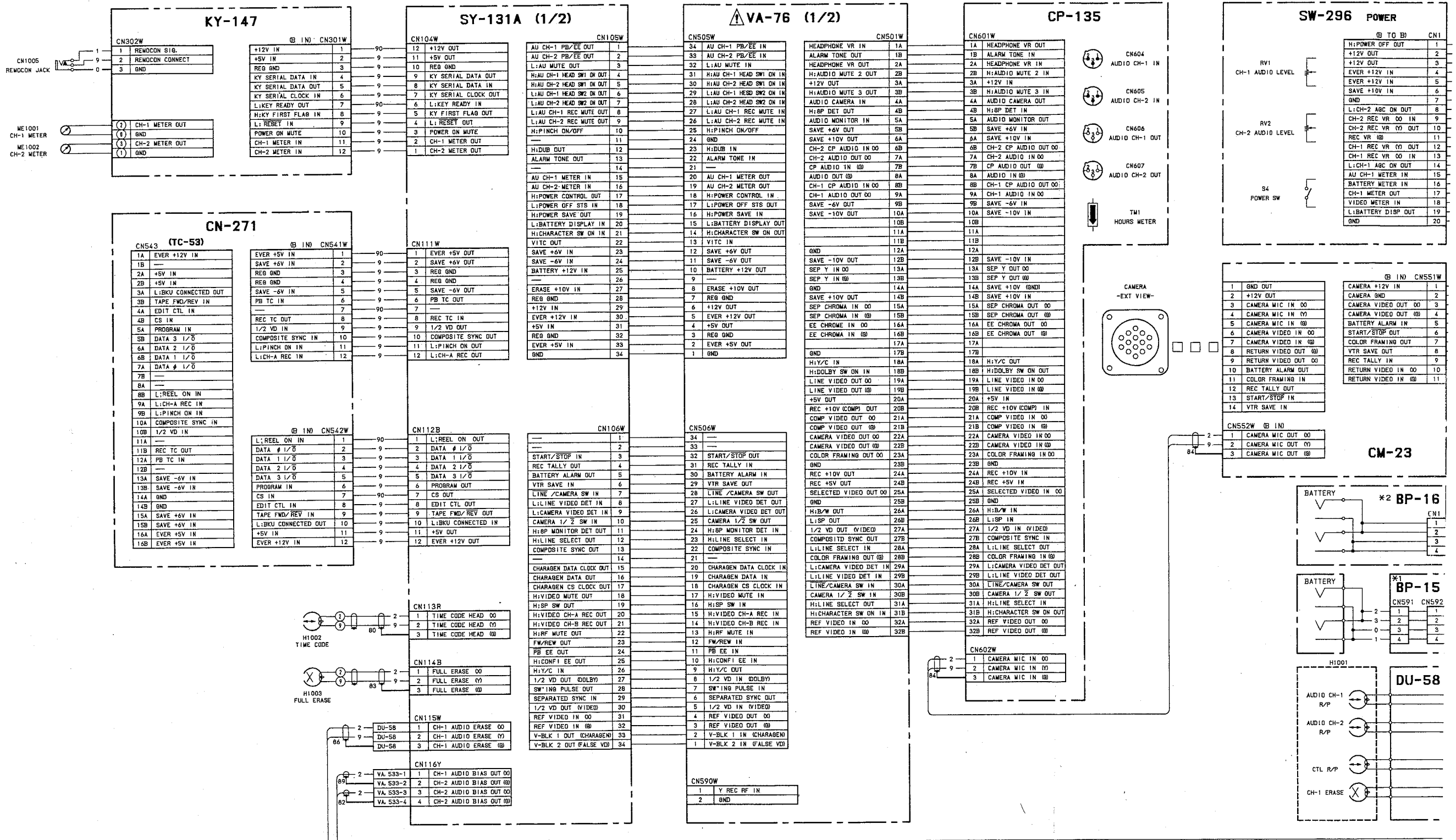
DUS-262 —COMPONENT SIDE—
1-629-228-11
VO - 8800P



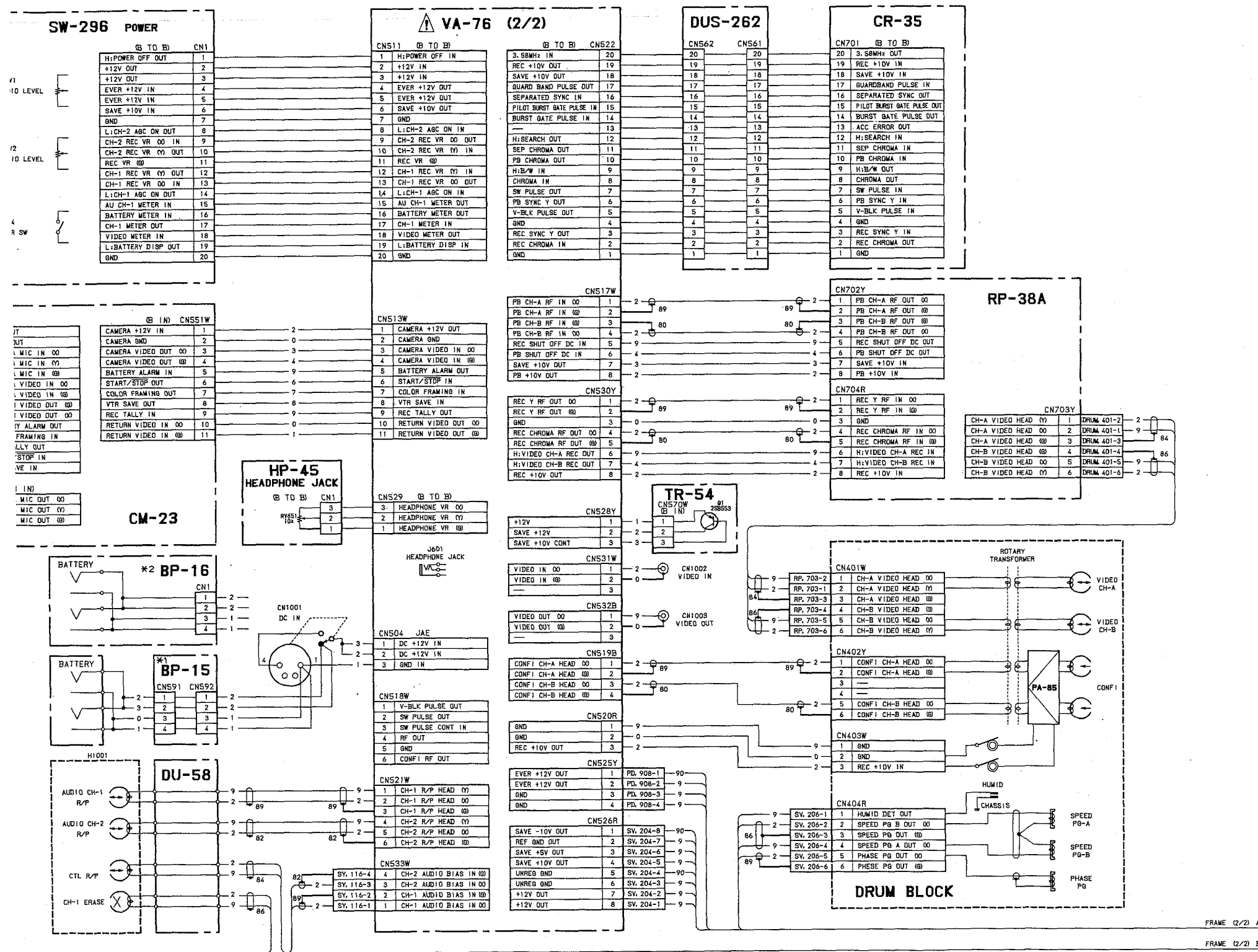
HP-45 —COMPONENT SIDE—
1-629-242-11, 12
VO-8800P



TR-54 —COMPONENT SIDE—
1-629-250-11
VO - 8800P



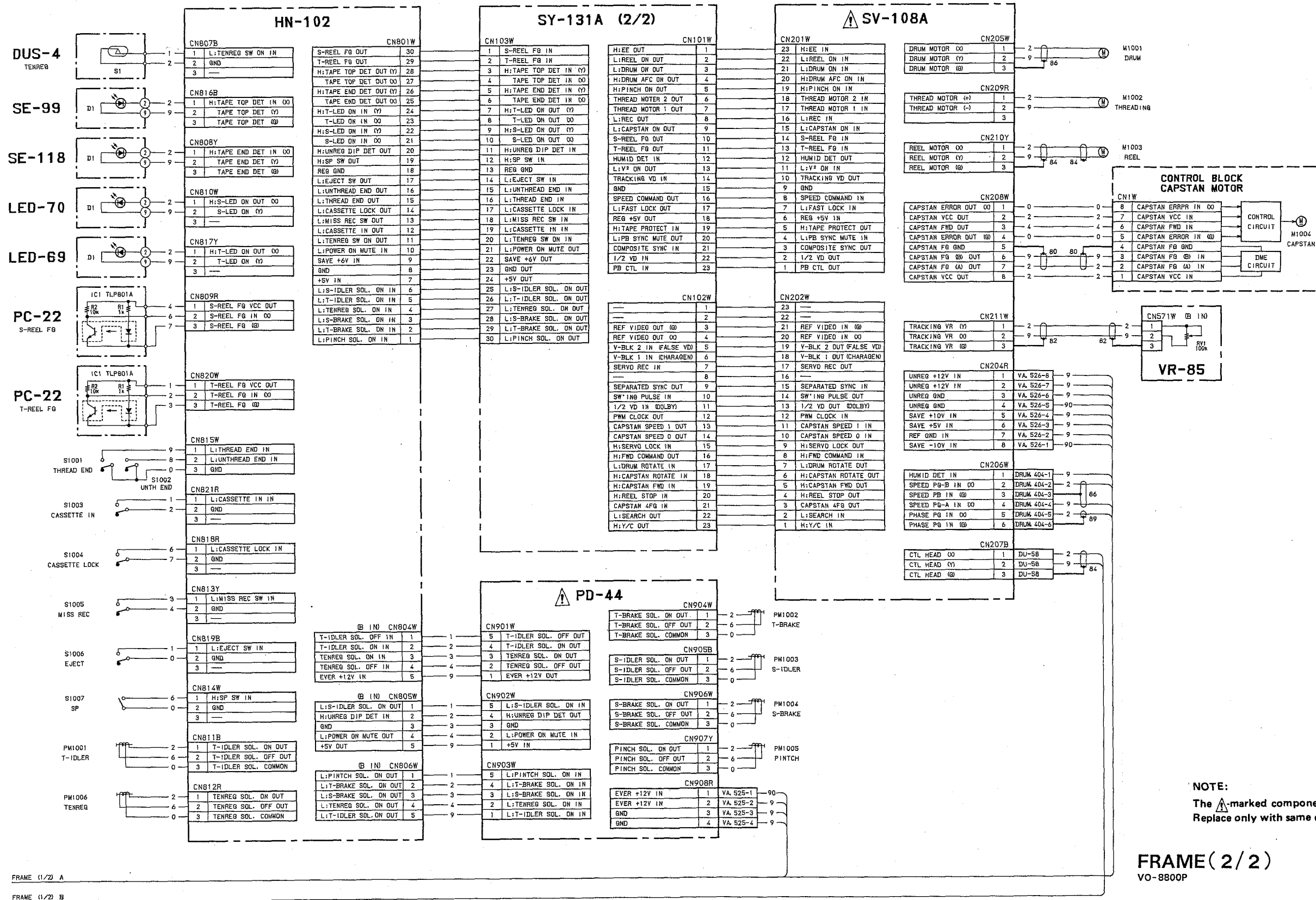
NOTE: *1 marked b
*2 marked b



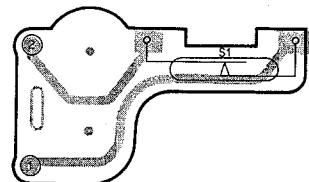
NOTE: *1 marked board is for Serial No. up to 10300.
*2 marked board is for Serial No. 10301 and higher.

FRAME (1/2)
VO-8800P

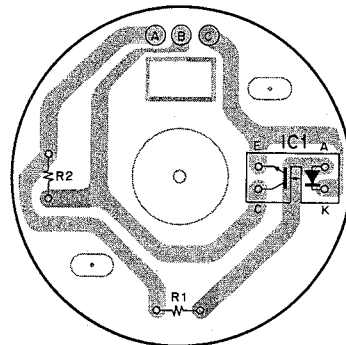
NOTE:
The Δ -marked components are critical to safety.
Replace only with same components as specified.



DUS - 4 : TENSION REGULATOR SWITCH
LED - 69 : TAPE TOP LED
LED - 70 : TAPE END LED
PC - 22 : TAKE - UP / SUPPLY REEL FG
SE - 99 : TAPE TOP DETECTOR
SE - 118 : TAPE END DETECTOR
VR - 85 : TRACKING VR



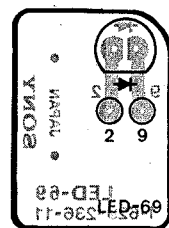
DUS-4 —SOLDERING SIDE—
1-611-963-11
VO-8800P



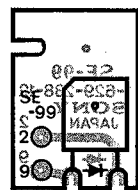
PC-22 —SOLDERING SIDE—
1-611-960-12
VO-8800P



VR-85 —COMPONENT SIDE—
1-629-249-11
VO-8800P



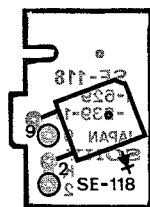
LED-69 —COMPONENT SIDE—
1-629-236-11
VO-8800P



SE-99 —COMPONENT SIDE—
1-629-238-11, 12
VO-8800P



LED-70 —COMPONENT SIDE—
1-629-237-11
VO-8800P



SE-118 —COMPONENT SIDE—
1-629-239-11
VO-8800P

SECTION 16

SPARE PARTS AND FIXTURE

16-1. PARTS INFORMATION

- (1) The Δ -marked components are critical to safety.

Replace only with same components as specified.

- (2) Replacement Parts supplied from the Sony Parts Center will sometimes have a different shape from the original parts. This is due to "accommodating the improved parts and/or engineering changes" or "standardization of genuine parts."

This manual's exploded views and electrical spare parts list indicate the part numbers of "the standardized genuine parts at the present".

Regarding engineering part changes in out engineering department, refer to Sony service bulletins and service manual supplements.

- (3) The parts marked with "s" in the SP column of the exploded views and electrical spare parts list are normally stocked for replacement purposes. The parts marked with "o" in the SP column are not normally required for routine service work. Orders for parts marked with "o" will be processed, but allow for additional delivery time.

- (4) Item with no part number and/or no description are not stocked because they are seldom required for routine service.

- (5) (T) after a spring description is shown on the exploded views in order to indicate the number of a spring turn required for the use.

(Example)

Spring, tension (24T); This spring must be cut at its 24th turn for actual use.

- (6) All capacitors are in micro farads unless otherwise specified.


All inductors are in micro henries unless otherwise specified.

All resistors are in ohms.

16-2. EXPLODED VIEW

.Exploded views are composed of the following blocks.

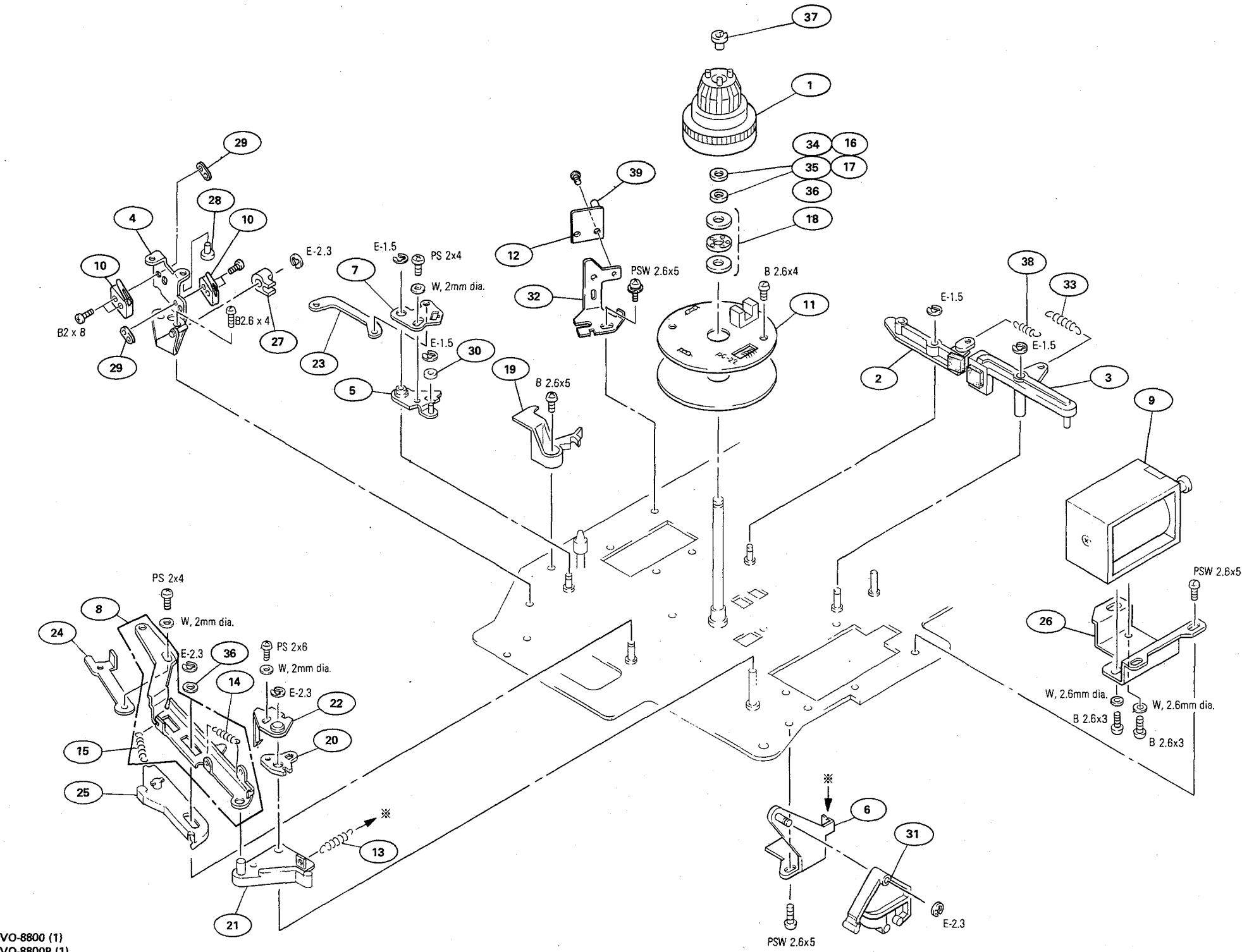
- (1) Reel Chassis Block (1) (take-up side)
take-up reel table
take-up side brake shoe
mis-recording switch
brake solenoid
eject lever
- (2) Reel Chassis Block (2)(supply side)
supply reel table
supply side brake shoe
tension regulator
cassette in switch
brake solenoid
tension solenoid
- (3) Reel Chassis Block (3)(driving block)
idler tire
idler solenoid
- (4) Reel Chassis Block (4)(back side)
drum motor
reel motor
drive belt
cassette-lock back
printed circuit board
- (5) T.U Arm and Ring Stopper Blocks
T.U arm
tape end detector
ring stopper
- (6) Threading Motor Block
threading motor
- (7) Pinch Pressure Block
pinch solenoid
pinch pressure mechanism
- (8) Threading Ring Block
threading ring

- 
- (9) Head Drum, Stationary Head and Tape
Guide Blocks
head drum
rotary upper drum
capstan motor
full erase head
audio/CTL head
tape guides
tape beginning sensor
- (10) Cassette-up Compartment Block
cassette-up compartment
- (11) Connector Panel Block
connector panel
TC unit case
- (12) Printed Circuit Board and Frame
Blocks
printed circuit board
frame chassis
- (13) Front Panel and Function Key Blocks
front panel
level meter
function key board
- (14) Ornamental Panel Block
upper case
lower case
cassette-up compartment lid

REEL CHASSIS BLOCK (1) REEL CHASSIS BLOCK (1)

Reel Chassis Block (1) (Take - Up Side)

| No. | Part No. | SP | Description |
|-----|--------------|----|-------------------------------|
| 1 | A-6739-034-A | s | TABLE ASSY, REEL |
| 2 | X-3685-818-2 | s | ARM ASSY, T SOFT BRAKE |
| 3 | X-3685-819-2 | s | ARM ASSY, BRAKE |
| 4 | X-3685-829-1 | o | BASE ASSY, MISS RECORDING |
| 5 | X-3685-830-1 | o | RING ASSY, SLIDE STOPPER |
| 6 | X-3685-831-1 | o | HOLDER ASSY, VH RING |
| 7 | X-3685-833-1 | o | PLATE ASSY, ADJUSTMENT, LINK |
| 8 | X-3685-838-1 | o | SLIDER ASSY, E |
| 9 | 1-454-383-11 | s | SOLENOID, PLUNGER |
| 10 | 1-570-028-11 | s | SWITCH, MICRO |
| 11 | 1-611-960-11 | o | PRINTED CIRCUIT BOARD, PC-22 |
| 12 | 1-629-237-11 | o | PRINTED CIRCUIT BOARD, LED-70 |
| 13 | 3-465-158-XX | s | SPRING, TENSION (16T) |
| 14 | 3-567-029-00 | s | SPRING, TENSION |
| 15 | 3-573-930-00 | s | SPRING, TENSION |
| 16 | 3-621-910-01 | s | WASHER, 0.05T |
| 17 | 3-621-910-11 | s | WASHER, 0.1T |
| 18 | 3-676-322-00 | s | BEARING, THRUST |
| 19 | 3-685-802-01 | o | GUIDE, PINCH ROLLER |
| 20 | 3-685-809-01 | o | PLATE, ADJUSTMENT, E. SWITCH |
| 21 | 3-685-810-01 | o | LINK, REPLACEMENT, H |
| 22 | 3-685-811-01 | s | ACTUATOR, E SWITCH |
| 23 | 3-685-812-01 | o | JOINT, KM |
| 24 | 3-685-813-01 | o | JOINT, SLIDER, E |
| 25 | 3-685-814-01 | s | PRESSURE, E |
| 26 | 3-685-832-01 | o | BASE, E-SOL |
| 27 | 3-685-850-01 | o | LEVER, RELEASE, C LOCK |
| 28 | 3-685-851-01 | o | SHAFT, MS |
| 29 | 3-685-852-01 | o | NUT (M2), PLATE |
| 30 | 3-685-860-01 | s | ROLLER, E STOPPER |
| 31 | 3-685-864-01 | o | LINK, VH CHANGE |
| 32 | 3-685-867-01 | o | PLATE, S-LED |
| 33 | 3-686-070-01 | s | SPRING, TENSION |
| 34 | 3-701-439-01 | s | WASHER, POLY 3MM DIA., 0.13T |
| 35 | 3-701-439-11 | s | WASHER, POLY 3MM DIA., 0.25T |
| 36 | 3-701-439-21 | s | WASHER, POLY 3MM DIA., 0.5T |
| 37 | 3-703-074-00 | s | CAP 3, SHAFT |
| 38 | 4-847-057-00 | s | SPRING, TENSION |
| 39 | 8-719-912-39 | s | DIODE, SLR-932A |

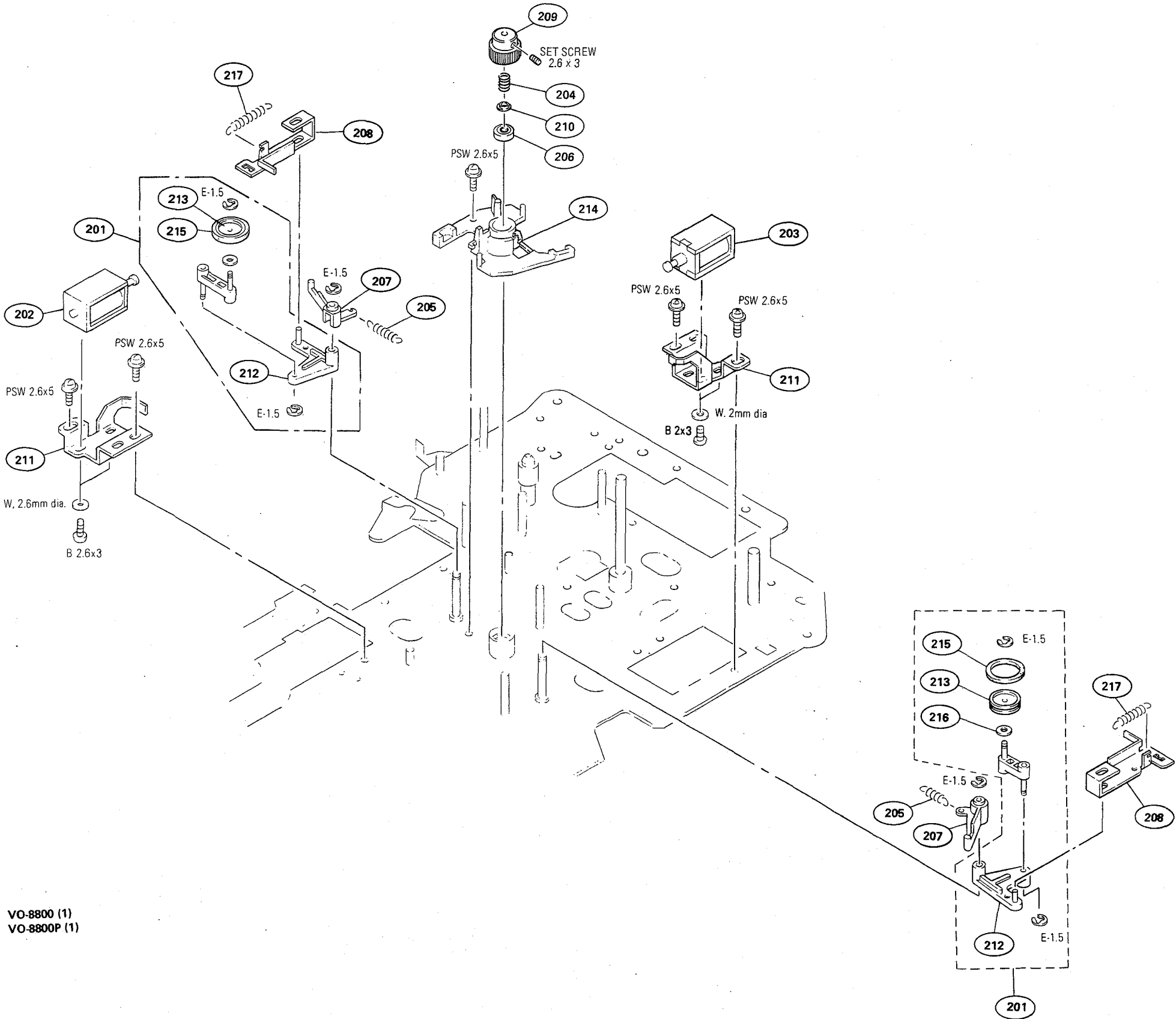


VO-8800 (1)
VO-8800P (1)

REEL CHASSIS BLOCK (3)

REEL CHASSIS BLOCK (3)

Reel Chassis Block (3) (Driving Block)



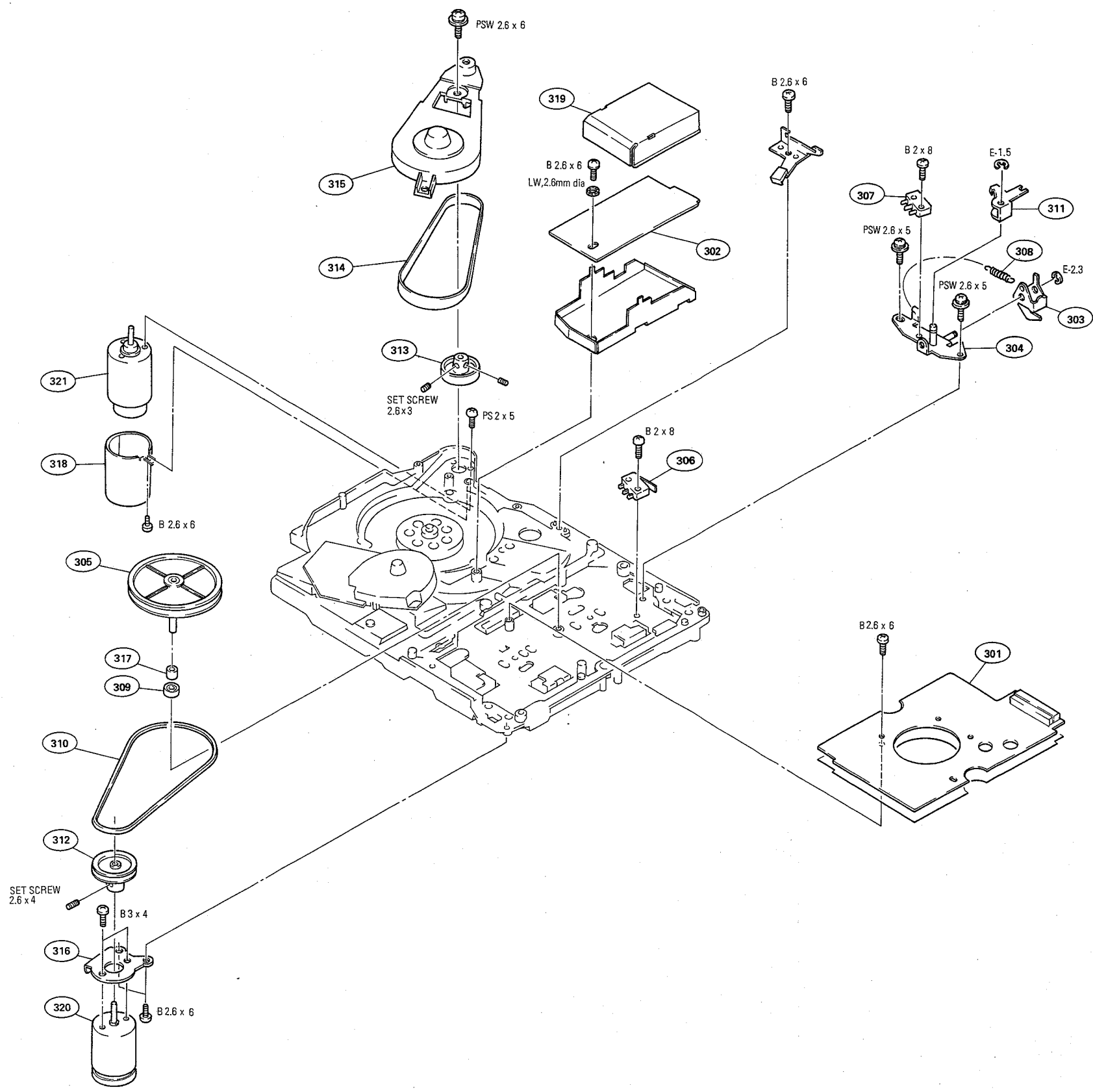
| No. | Part No. | SP | Description |
|-----|--------------|----|-----------------------------|
| 201 | A-6740-084-A | o | IDLER ASSY |
| 202 | 1-454-381-11 | s | SOLENOID, PLUNGER |
| 203 | 1-454-381-21 | s | SOLENOID, PLUNGER |
| 204 | 2-245-132-00 | s | SPRING, COMPRESSION |
| 205 | 3-537-783-XX | s | SPRING, TENSION (18T) |
| 206 | 3-655-691-01 | s | BEARING, BALL |
| 207 | 3-685-822-01 | o | ARM, IDLER RELEASE |
| 208 | 3-685-823-01 | o | PLATE, PRESS, IDLER |
| 209 | 3-685-824-01 | o | PULLEY, MIDWAY |
| 210 | 3-685-825-01 | o | RETAINER, SPRING |
| 211 | 3-685-833-01 | o | BASE, I-SOL |
| 212 | 3-685-835-01 | s | ARM (B), IDLER |
| 213 | 3-685-836-01 | o | PULLEY, IDLER |
| 214 | 3-685-972-01 | o | RETAINER, IDLER |
| 215 | 3-687-902-01 | s | TIRE, IDLER |
| 216 | 3-701-437-21 | s | WASHER, POLY 2MM DIA., 0.5T |
| 217 | 4-812-499-XX | s | SPRING, TENSION (15T) |

VO-8800 (1)
VO-8800P (1)

REEL CHASSIS BLOCK (4)

REEL CHASSIS BLOCK (4)

Reel Chassis Block (4) (Back Side)

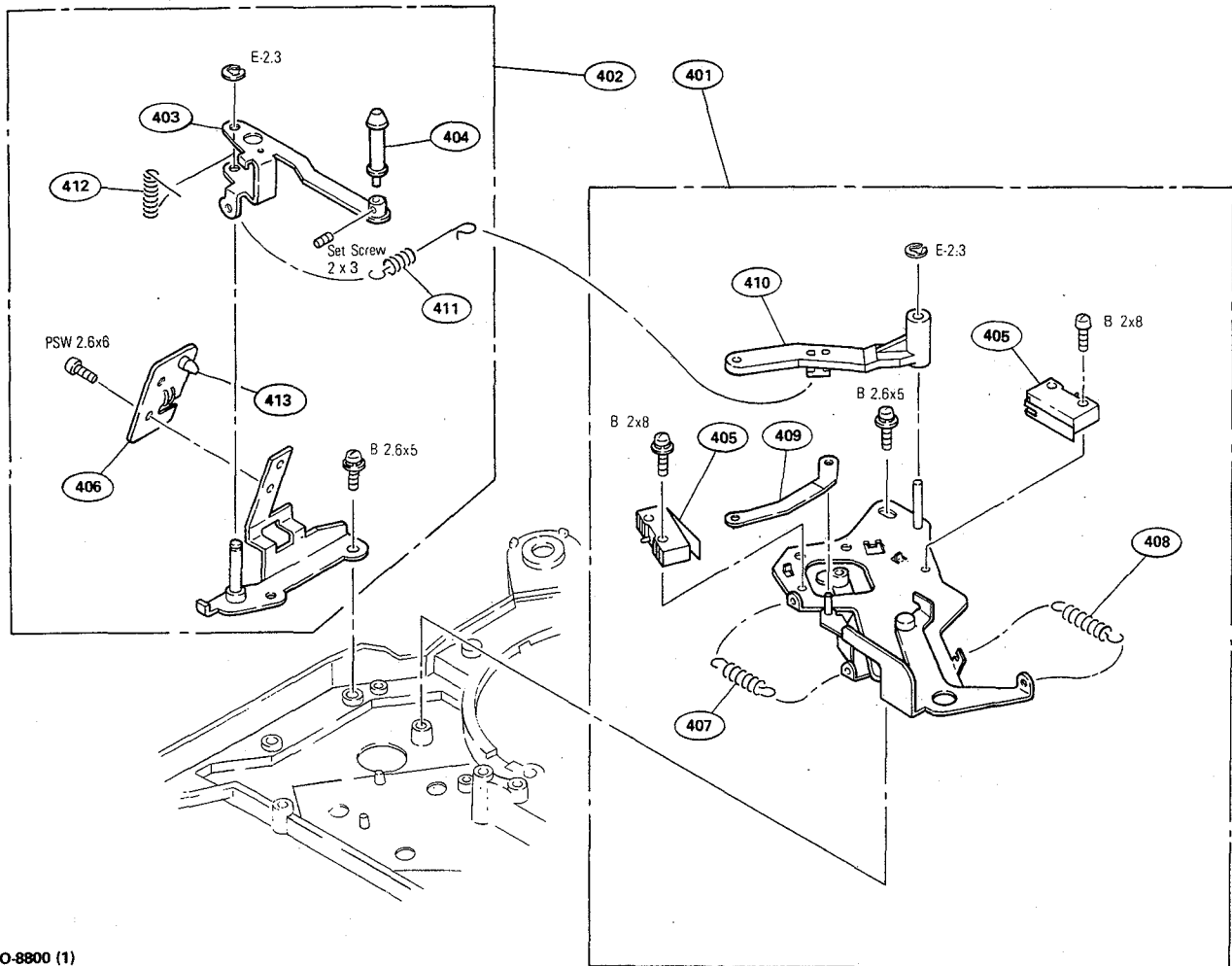


VO-8800 (1)
VO-8800P (1)

| No. | Part No. | SP | Description |
|-----|--------------|----|--|
| 301 | A-6725-667-A | o | MOUNTED CIRCUIT BOARD, HN-102 |
| 302 | A-6727-053-A | o | MOUNTED CIRCUIT BOARD, RP-38A (for EK) |
| | A-6727-058-A | o | MOUNTED CIRCUIT BOARD, RP-38 (for UC) |
| 303 | X-3685-827-1 | o | ARM ASSY, C LOCK |
| 304 | X-3685-828-1 | o | BRACKET ASSY, C LOCK ARM |
| 305 | X-3731-603-1 | s | PULLEY ASSY, MIDWAY |
| 306 | 1-570-028-11 | s | SWITCH, MICRO |
| 307 | 1-570-028-21 | s | SWITCH, MICRO |
| 308 | 3-571-819-00 | s | SPRING, TENSION |
| 309 | 3-655-691-01 | s | BEARING (FLANGE NO), BALL |
| 310 | 3-685-803-02 | s | BELT, REEL |
| 311 | 3-685-855-01 | o | LEVER, SWITCH, LOCK |
| 312 | 3-685-902-02 | o | PULLEY, MOTOR |
| 313 | 3-686-016-01 | s | PULLEY, D MOTOR |
| 314 | 3-731-683-01 | s | BELT, DRUM |
| 315 | 3-686-095-01 | o | COVER, D PULLEY |
| 316 | 3-731-619-01 | o | BRACKET, MOTOR |
| 317 | 3-731-623-01 | o | SPACER, PULLEY |
| 318 | 3-731-661-01 | o | PLATE (B), SHIELD, M |
| 319 | 3-731-671-01 | o | SHIELD PLATE, RP |
| 320 | 8-835-123-01 | s | MOTOR, DC(MNR-7400A) |
| 321 | 8-835-235-01 | s | MOTOR, DC(MNR-2900B) |

T.U ARM AND RING STOPPER BLOCKS

T.U Arm and Ring Stopper Blocks



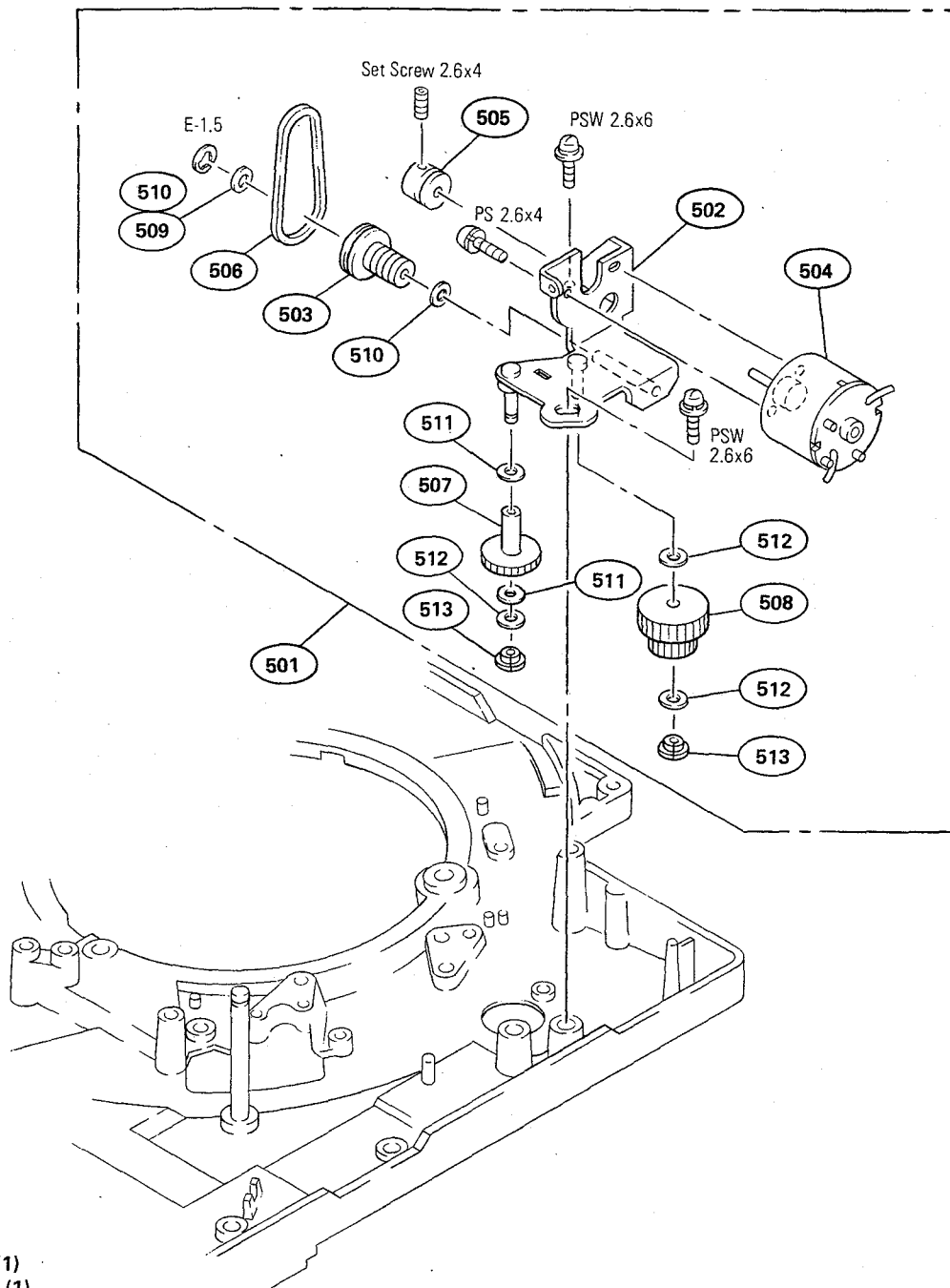
VO-8800 (1)
VO-8800P (1)

| No. | Part No. | SP | Description |
|-----|--------------|----|-------------------------------|
| 401 | A-6744-019-A | o | STOPPER ASSY, RING |
| 402 | A-6746-058-A | o | ARM ASSY, TU |
| 403 | X-3685-824-3 | o | ARM ASSY, T |
| 404 | X-3685-858-1 | s | ROLLER ASSY, T GUIDE |
| 405 | 1-570-028-11 | s | SWITCH, MICRO |
| 406 | 1-629-236-11 | o | PRINTED CIRCUIT BOARD, LED-69 |
| 407 | 3-515-170-01 | s | SPRING, TENSION |
| 408 | 3-535-369-XX | s | SPRING, TENSION (12T) |

| No. | Part No. | SP | Description |
|-----|--------------|----|-----------------|
| 409 | 3-685-812-01 | o | JOINT, KM |
| 410 | 3-685-903-03 | o | ARM, DRAWER |
| 411 | 3-686-005-04 | s | SPRING, TENSION |
| 412 | 3-686-006-01 | s | SPRING |
| 413 | 8-719-912-39 | s | DIODE, SLR-932A |

THREADING MOTOR BLOCK

Threading Motor Block

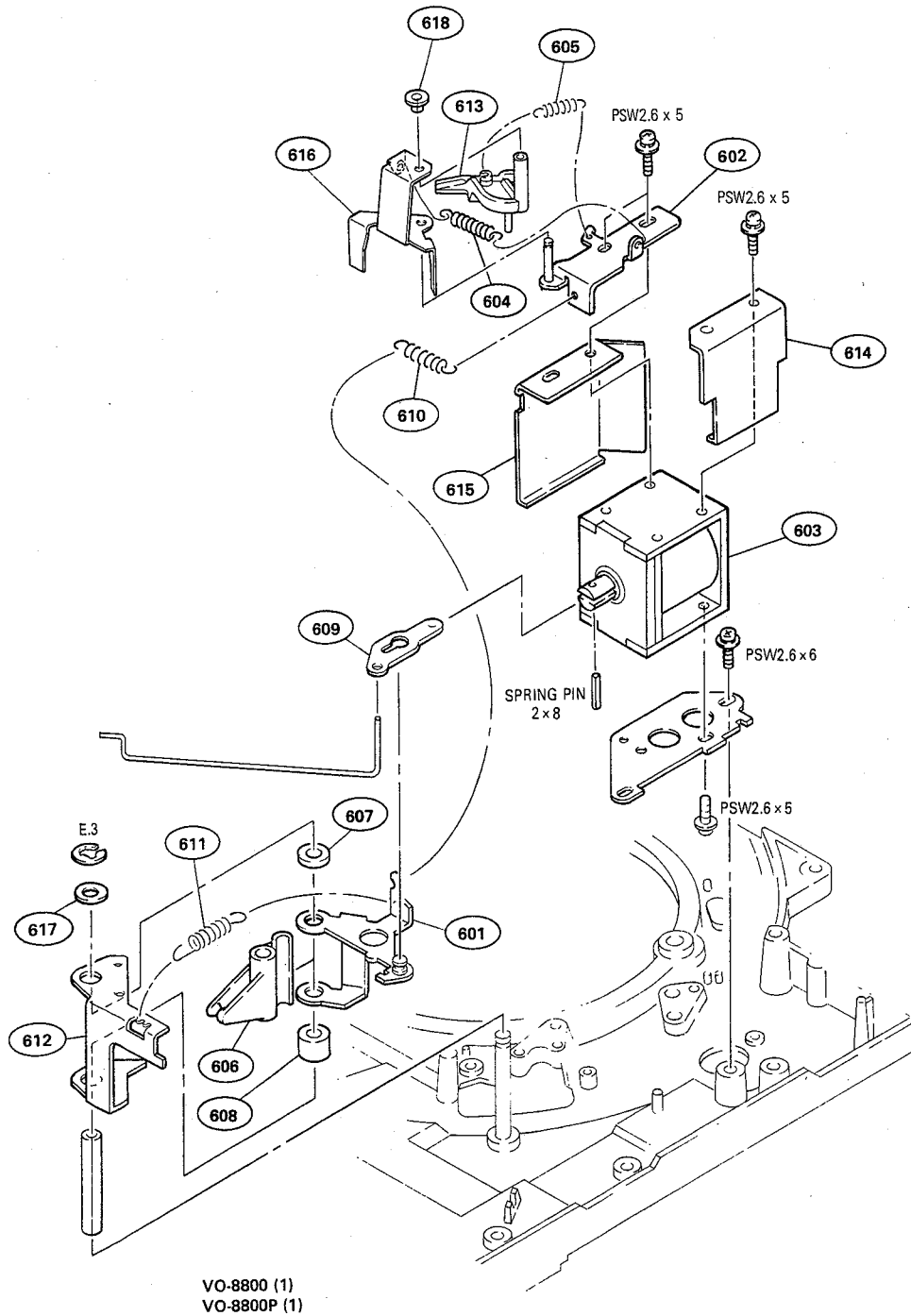


VO-8800 (1)
VO-8800P (1)

| No. | Part No. | SP | Description |
|-----|--------------|----|--------------------|
| 501 | A-6737-197-A | o | GEAR ASSY, LD |
| 502 | X-3685-845-2 | o | BASE ASSY, LD GEAR |
| 503 | X-3685-851-1 | s | GEAR ASSY, WORM |
| 504 | 1-541-163-51 | s | MOTOR |
| 505 | 3-686-009-02 | o | PULLEY, LD |
| 506 | 3-686-010-03 | s | BELT, LD |
| 507 | 3-686-011-02 | s | GEAR, THREADING |
| 508 | 3-686-012-01 | s | GEAR, DRIVE |

| No. | Part No. | SP | Description |
|-----|--------------|----|------------------------------|
| 509 | 3-701-437-01 | s | WASHER, POLY 2MM DIA., 0.13T |
| 510 | 3-701-437-11 | s | WASHER, POLY 2MM DIA., 0.25T |
| 511 | 3-701-439-11 | s | WASHER, POLY 3MM DIA 0.25T |
| 512 | 3-701-439-21 | s | WASHER, POLY 3MM DIA., 0.5T |
| 513 | 3-703-074-00 | s | CAP 3, SHAFT |

Pinch Pressure Block



| No. | Part No. | SP | Description |
|-----|----------|----|-------------|
|-----|----------|----|-------------|

| | | | |
|-----|--------------|---|---------------------------|
| 601 | X-3685-822-1 | o | LEVER ASSY, CHARGE |
| 602 | X-3685-852-3 | o | PLATE ASSY, ADJUSTMENT, S |
| 603 | 1-454-386-13 | s | SOLENOID, PLUNGER |
| 604 | 3-555-125-01 | s | SPRING, TENSION |
| 605 | 3-668-508-11 | s | SPRING, TENSION |
| 606 | 3-685-927-03 | o | STOPPER, TAPE |
| 607 | 3-685-929-01 | o | SPACER |
| 608 | 3-685-929-11 | o | SPACER |
| 609 | 3-685-931-01 | o | JOINT |
| 610 | 3-686-003-01 | s | SPRING, TENSION |

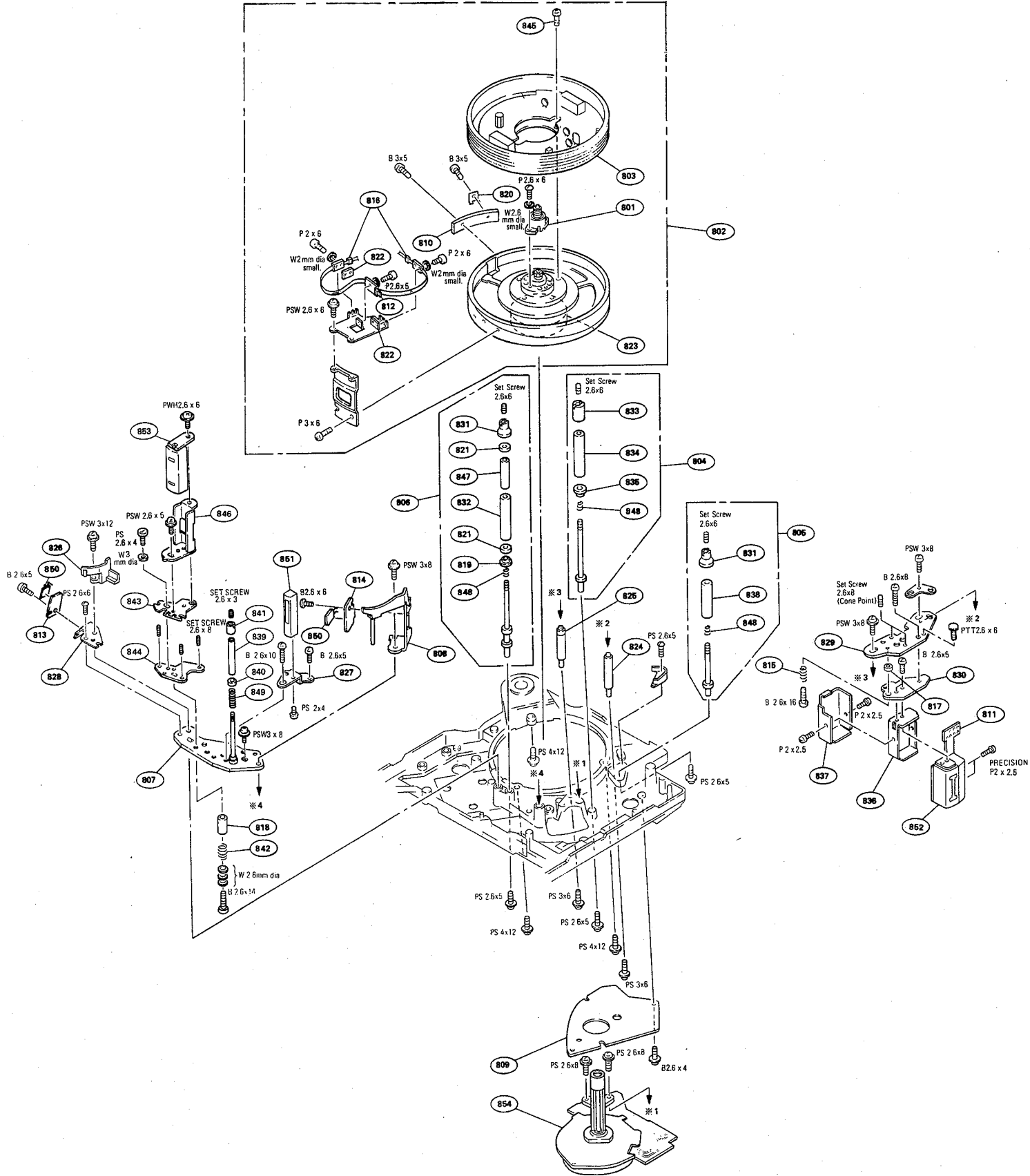
| No. | Part No. | SP | Description |
|-----|----------|----|-------------|
|-----|----------|----|-------------|

| | | | |
|-----|--------------|---|-----------------------------|
| 611 | 3-686-004-01 | s | SPRING, TENSION |
| 612 | 3-686-007-01 | o | PLATE, PRESS, PINCH |
| 613 | 3-687-905-02 | o | PLATE, J |
| 614 | 3-687-925-01 | o | PLATE, SHIELD, PSOL |
| 615 | 3-687-963-03 | o | PLATE (2), SHIELD, PSOL |
| 616 | 3-687-978-01 | o | ARM, PM |
| 617 | 3-701-441-21 | s | WASHER, POLY 4MM DIA., 0.5T |
| 618 | 3-703-075-00 | s | CAP 2, SHAFT |

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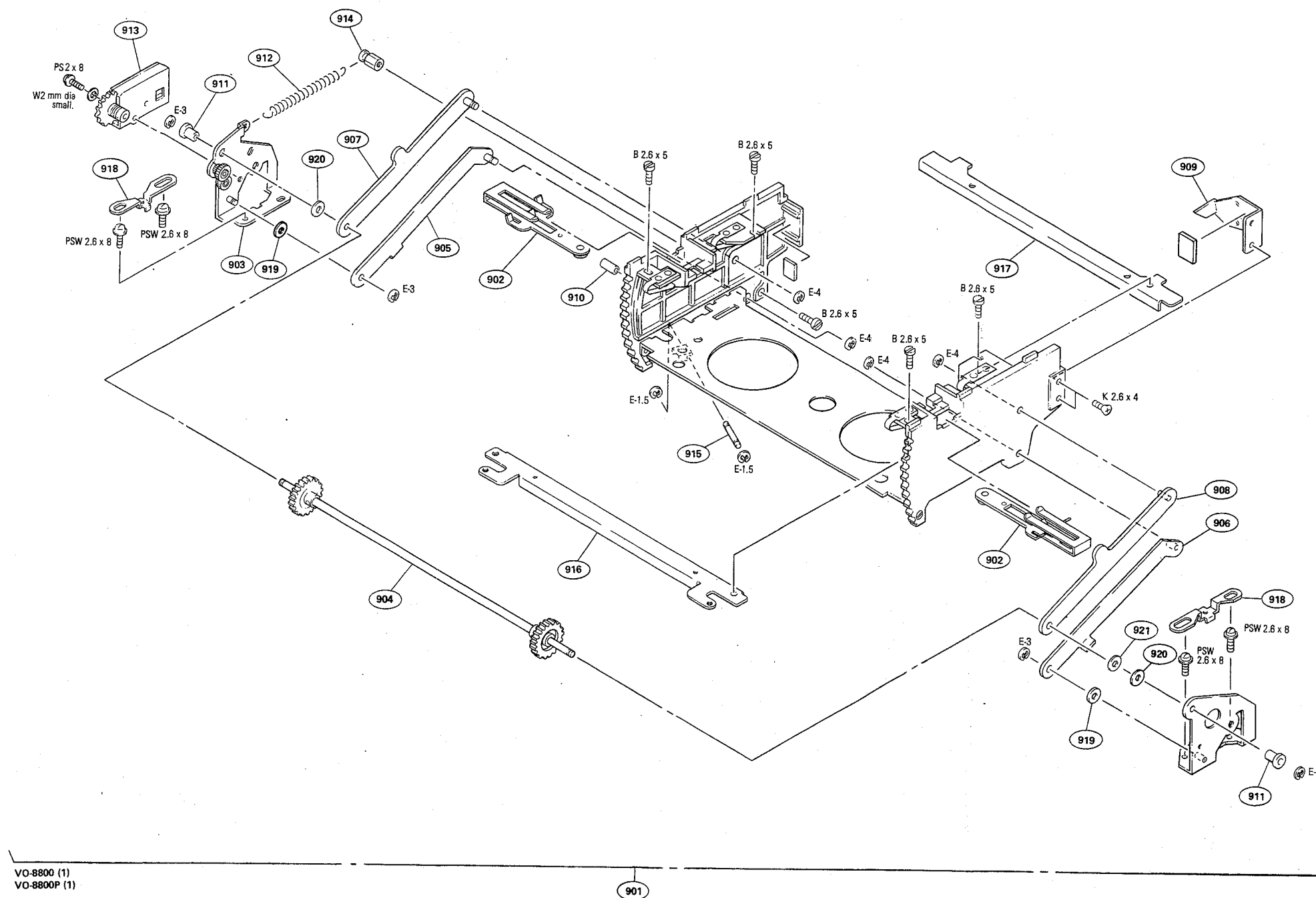
| No. | Part No. | SP | Description |
|-----|--------------|----|---------------------------------|
| 711 | 3-685-992-07 | s | CAP |
| 712 | 3-685-994-02 | o | BASE, TR THREAD |
| 713 | 3-687-950-01 | o | PLATE, STOPPER |
| 714 | 3-687-973-01 | o | GUARD, TU ARM |
| 715 | 3-698-916-01 | s | CAP, GUIDE ROLLER |
| 716 | 3-701-437-01 | s | WASHER, POLY 2MM DIA., 0.13T |
| 717 | 3-701-437-11 | s | WASHER, POLY 2MM DIA., 0.25T |
| 718 | 3-701-438-11 | s | WASHER, POLY 2.5 MM DIA., 0.25T |
| 719 | 3-701-438-21 | s | WASHER, POLY 2.5 MM DIA., 0.5T |

Head Drum, Stationary Head and Tape Guide Blocks



| No. | Part No. | SP | Description |
|-----|--------------|----|------------------------------------|
| 801 | A-4926-251-A | s | VO-SR5 ASSY |
| 802 | A-6709-662-A | s | HEAD DRUM ASSY, DUH-49A-R (For UC) |
| | A-6709-664-A | s | HEAD DRUM ASSY, DUH-50A-R (For EK) |
| 803 | A-6709-663-A | s | UPPER DRUM ASSY, DUR-49-R (For UC) |
| | A-6709-665-A | s | UPPER DRUM ASSY, DUR-50-R (For EK) |
| 804 | A-6746-039-A | o | TG (4) ASSY |
| 805 | A-6746-040-C | o | TG (3) ASSY |
| 806 | A-6746-041-A | o | TG (2) ASSY |
| 807 | X-3685-808-4 | o | BASE (A) ASSY, EN |
| 808 | X-3685-811-1 | s | LID OPEN SUB ASSY |
| 809 | X-3685-844-1 | o | PLATE ASSY, SHIELD, CPS |
| 810 | 1-586-633-00 | s | DETECTOR, CONDENSATION |
| 811 | 1-611-954-11 | o | PRINTED CIRCUIT BOARD, DU-58 |
| 812 | 1-612-593-11 | o | PRINTED CIRCUIT BOARD, SR-22 |
| 813 | 1-629-238-11 | o | PRINTED CIRCUIT BOARD, SE-99 |
| 814 | 1-629-239-11 | o | PRINTED CIRCUIT BOARD, SE-118 |
| 815 | 3-437-352-00 | s | SPRING, COMPRESSION |
| 816 | 3-641-645-00 | s | BRUSH |
| 817 | 3-642-718-00 | o | SPACER (2.6x10) |
| 818 | 3-642-719-00 | o | SPACER (2.6x11) |
| 819 | 3-654-602-00 | s | RETAINER, BEARING |
| 820 | 3-655-631-00 | o | TERMINAL, GROUND |
| 821 | 3-655-691-01 | s | BEARING, BALL |
| 822 | 3-665-001-00 | o | NUT, PLATE |
| 823 | 3-685-004-01 | o | PULLEY, DRUM |
| 824 | 3-685-804-01 | o | SUPPORT (1), EX |
| 825 | 3-685-805-01 | o | SUPPORT (2), EX |
| 826 | 3-685-806-01 | o | RETAINER, TAPE |
| 827 | 3-685-896-01 | o | BASE, ERASE |
| 828 | 3-685-897-03 | o | BRACKET, T.D |
| 829 | 3-685-899-01 | o | BASE (A), EX |
| 830 | 3-685-900-01 | o | BASE (B), EX |
| 831 | 3-685-920-01 | s | FLANGE, TAPE |
| 832 | 3-685-921-01 | s | GUIDE, TAPE |
| 833 | 3-685-924-01 | s | FLANGE (U), EX |
| 834 | 3-685-925-01 | s | GUIDE, EX |
| 835 | 3-685-926-01 | s | FLANGE (L), EX |
| 836 | 3-685-978-01 | o | CASE, AU |
| 837 | 3-685-979-01 | o | CASE (REAR), AU |
| 838 | 3-686-020-03 | s | GUIDE, TPAE |
| 839 | 3-687-968-01 | s | GUIDE, TG-1 |
| 840 | 3-687-969-01 | s | FLANGE, TG-1 |
| 841 | 3-687-970-01 | s | SCREW, TG-1 |
| 842 | 3-698-906-01 | s | SPRING, COMPRESSION |
| 843 | 3-698-912-01 | o | BASE (C-2), EN |
| 844 | 3-698-914-01 | o | BASE (B-2), EN |
| 845 | 3-703-467-00 | s | SCREW |
| 846 | 3-731-620-01 | o | BRACKET, TC |
| 847 | 4-855-006-01 | s | SPACER (3x12) |
| 848 | 4-866-143-00 | o | SPRING, COMPRESSION |
| 849 | 4-868-051-01 | o | SPRING, COMPRESSION |
| 850 | 8-719-110-32 | s | DIODE PH302B |
| 851 | 8-825-544-20 | s | HEAD, ERASE |
| 852 | 8-825-578-22 | s | HEAD, ACE (EPS264-5803) |
| 853 | 8-825-771-31 | s | HEAD, T/C (PF295-58) |
| 854 | 8-835-351-01 | s | MOTOR, DC (BHF-1913B) |

Cassette – Up Compartment Block

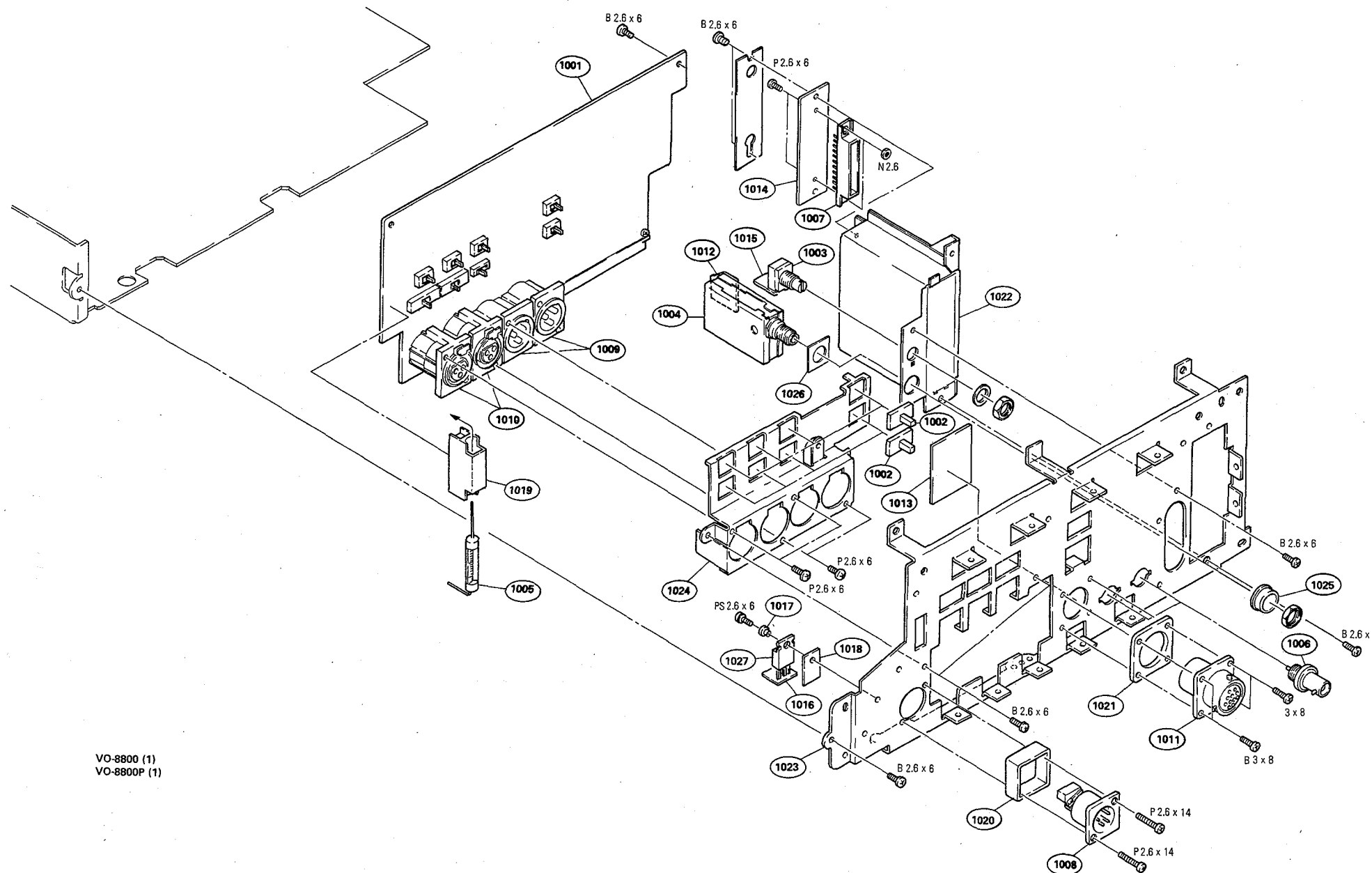


| No. | Part No. | SP | Description |
|-----|--------------|----|------------------------------|
| 901 | A-6751-200-B | s | CASSETTE COMPARTMENT ASSY |
| 902 | X-3657-049-0 | o | RETAINER ASSY, C REEL |
| 903 | X-3685-826-2 | o | HOLDER (L) ASSY, C |
| 904 | X-3685-832-2 | o | GEAR ASSY, T |
| 905 | X-3685-834-3 | o | ARM (LEFT LOWER) ASSY, C |
| 906 | X-3685-835-1 | o | ARM (RIGHT LOWER) ASSY, C |
| 907 | X-3685-836-1 | o | ARM (LEFT UPPER) ASSY, C |
| 908 | X-3685-837-1 | o | ARM (RIGHT UPPER) ASSY, C |
| 909 | 3-657-119-00 | o | PLATE, RELEASE, (C) LID LOCK |
| 910 | 3-657-120-04 | o | ROLLER |
| 911 | 3-657-195-00 | s | SLEEVE, C |
| 912 | 3-657-238-00 | o | SPRING, TENSION |
| 913 | 3-681-528-00 | o | DAMPER |
| 914 | 3-685-945-01 | o | HOOK, SPRING, C |
| 915 | 3-685-946-01 | s | PIN, LOCK, LEVER, E |
| 916 | 3-685-947-01 | o | STAY (FRONT), C |
| 917 | 3-685-948-01 | o | STAY (REAR), C |
| 918 | 3-685-949-01 | o | RETAINER, SPRING |
| 919 | 3-701-441-21 | s | WASHER, POLY 4MM DIA., 0.5T |
| 920 | 3-701-444-11 | s | WASHER, POLY 6MM DIA., 0.25T |
| 921 | 3-701-444-21 | s | WASHER, POLY 6MM DIA., 0.5T |

VO-8800 (1)
VO-8800P (1)

CONNECTOR PANEL BLOCK CONNECTOR PANEL BLOCK

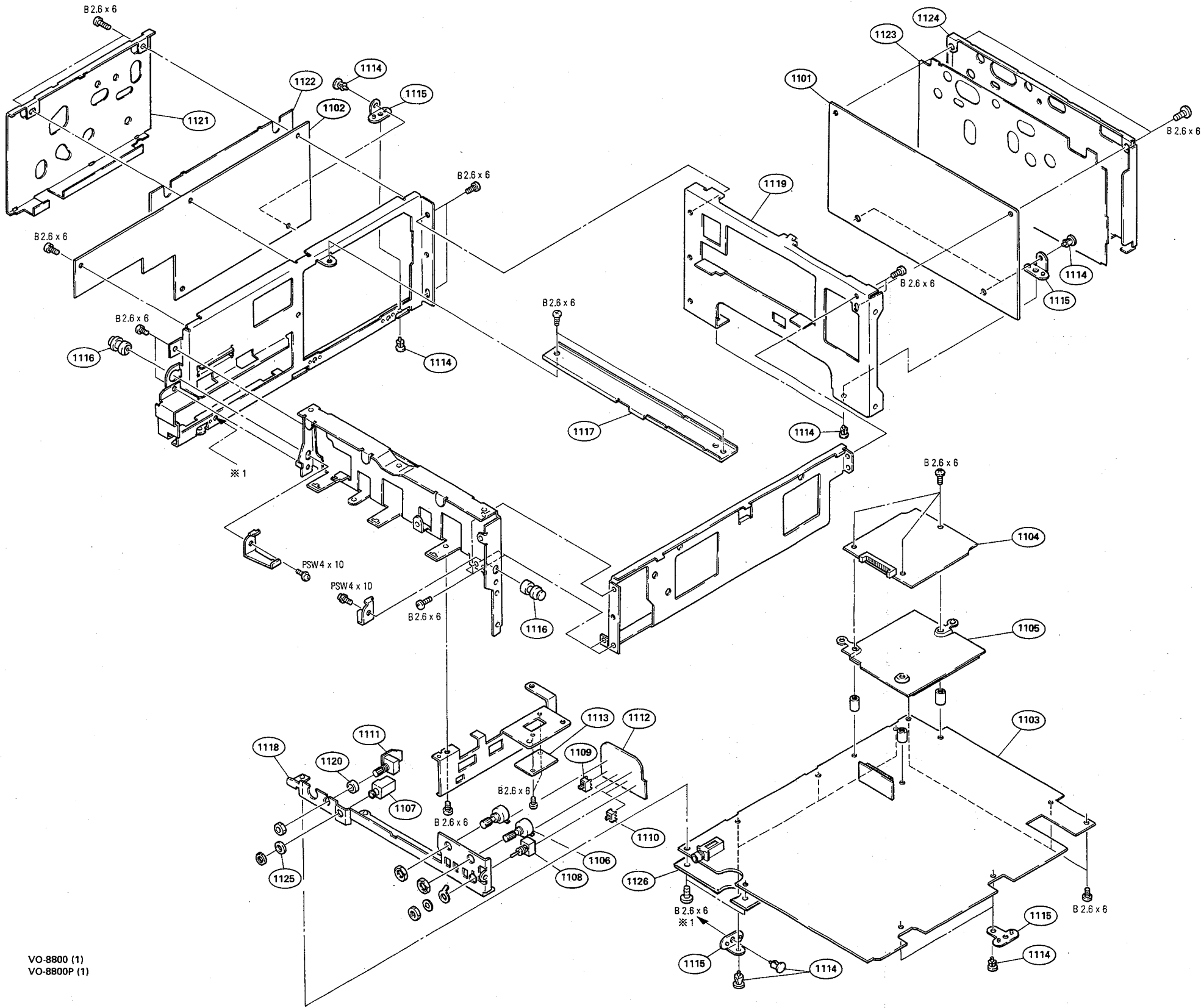
Connector Panel Block



VO-8800 (1)
VO-8800P (1)

| No. | Part No. | SP | Description |
|------|--------------|----|--|
| 1001 | A-6727-050-A | o | MOUNTED CIRCUIT BOARD, CP-135 (for EK) |
| | A-6727-055-A | o | MOUNTED CIRCUIT BOARD, CP-134 (for UC) |
| 1002 | X-3731-610-1 | s | LEVER (CP) ASSY, SW |
| 1003 | 1-237-764-12 | s | RES, VAR, CARBON 100k |
| 1004 | 1-464-841-21 | s | MODULATOR, RF (RFU-789) (for UC) |
| 1005 | 1-548-119-21 | s | HOURS METER |
| 1006 | 1-561-781-21 | s | CONNECTOR, BNC (RECEPTACLE) |
| 1007 | 1-563-334-11 | o | HOUSING, CONNECTOR (DIP) 32P |
| 1008 | 1-564-603-11 | s | CONNECTOR, (WITH DC SW) 4P |
| 1009 | 1-565-281-11 | o | CONNECTOR, XLR TYPE 3P |
| 1010 | 1-565-282-11 | o | CONNECTOR, XLR TYPE 3P |
| 1011 | 1-568-179-11 | s | CONNECTOR, ROUND TYPE 14P |
| 1012 | 1-629-240-11 | o | PRINTED CIRCUIT BOARD, RMD-2 (for UC) |
| 1013 | 1-629-241-11 | o | PRINTED CIRCUIT BOARD, CM-23 |
| 1014 | 1-629-248-11 | o | PRINTED CIRCUIT BOARD, CN-271 |
| 1015 | 1-629-249-11 | o | PRINTED CIRCUIT BOARD, VR-85 |
| 1016 | 1-629-250-11 | o | PRINTED CIRCUIT BOARD, TR-54 |
| 1017 | 2-832-007-00 | s | BUSHING (K), INSULATING |
| 1018 | 3-660-978-00 | o | SHEET, HEAT RESISTING |
| 1019 | 3-731-611-01 | o | SPACER, HM |
| 1020 | 3-731-625-01 | o | SPACER, POWER |
| 1021 | 3-731-626-01 | o | SPACER, 14P |
| 1022 | 3-731-642-01 | o | CHASSIS, VB |
| 1023 | 3-731-663-01 | o | CHASSIS, CP |
| 1024 | 3-731-665-01 | o | CHASSIS, XL |
| 1025 | 3-731-668-01 | o | SPACER, RF (for UC) |
| 1026 | 3-731-669-01 | o | SHEET, INSULATING, RF (for UC) |
| 1027 | 8-729-205-32 | s | TRANSISTOR 2SB553-Y |

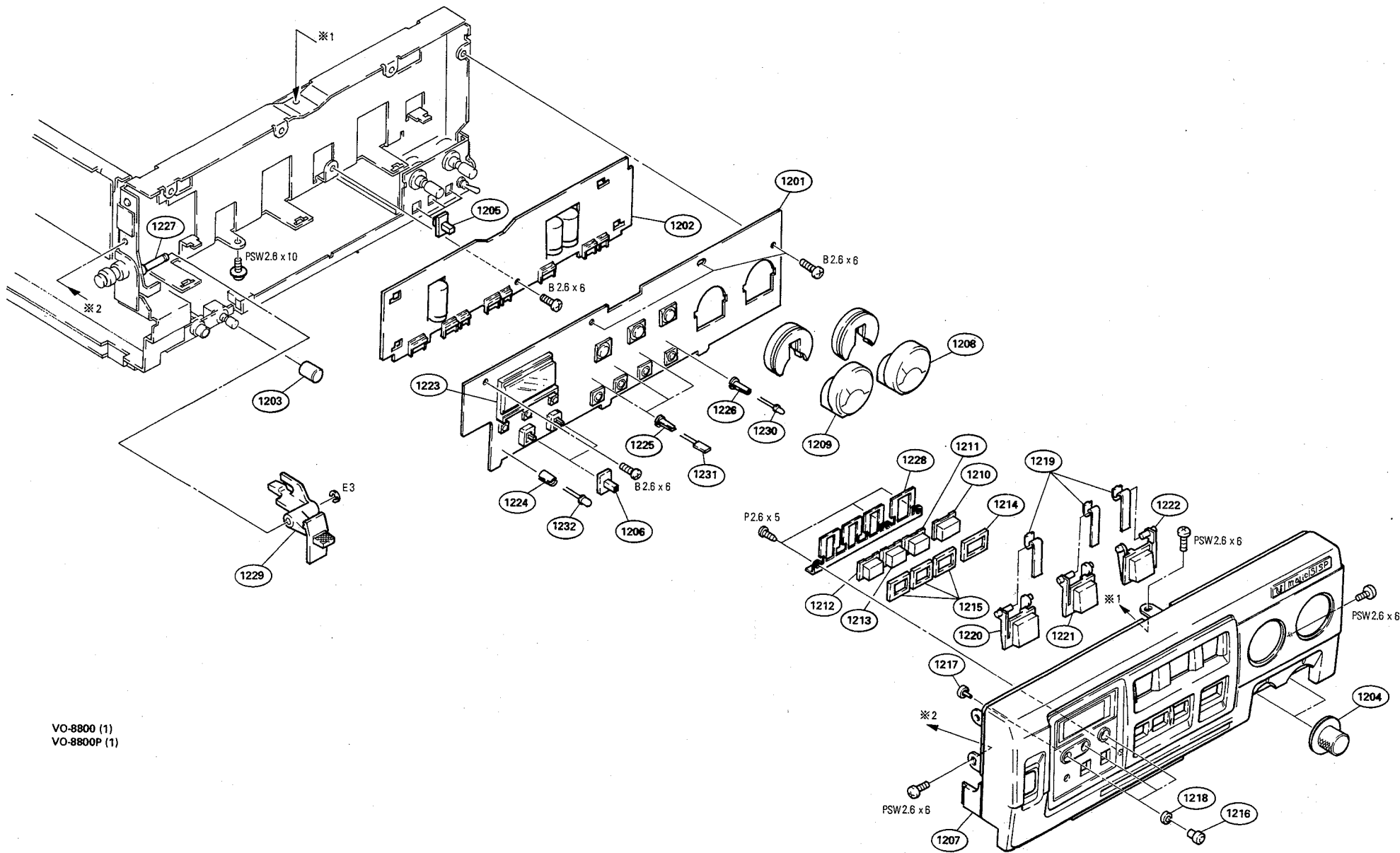
Printed Circuit Board and Frame Blocks



| No. | Part No. | SP | Description |
|------|--------------|----|---|
| 1101 | A-6715-420-B | o | MOUNTED CIRCUIT BOARD, SV-108 (for UC) |
| | A-6715-421-B | o | MOUNTED CIRCUIT BOARD, SV-108A (for EK) |
| 1102 | A-6717-528-A | o | MOUNTED CIRCUIT BOARD, SY-131 (for UC) |
| | A-6717-530-A | o | MOUNTED CIRCUIT BOARD, SY-131A (for EK) |
| 1103 | A-6727-051-A | o | MOUNTED CIRCUIT BOARD, VA-76 (for EK) |
| | A-6727-054-A | o | MOUNTED CIRCUIT BOARD, VA-75 (for UC) |
| 1104 | A-6727-052-A | o | MOUNTED CIRCUIT BOARD, CR-35 (for EK) |
| | A-6727-057-A | o | MOUNTED CIRCUIT BOARD, CR-34 (for UC) |
| 1105 | X-3731-609-1 | o | PLATE ASSY, SHIELD, CR |
| 1106 | 1-237-701-11 | s | RES, VAR, CARBON 5k |
| 1107 | 1-507-195-21 | s | SPECIAL REMOTE CONTROL JACK |
| 1108 | 1-553-245-00 | s | SWITCH, TOGGLE |
| 1109 | 1-570-835-11 | s | SWITCH, SLIDE |
| 1110 | 1-570-844-11 | s | SWITCH, SLIDE |
| 1111 | 1-629-242-11 | o | PRINTED CIRCUIT BOARD, HP-45 |
| 1112 | 1-629-246-12 | o | PRINTED CIRCUIT BOARD, SW-296 |
| 1113 | 1-629-914-11 | o | PRINTED CIRCUIT BOARD, BP-15 (UC: UP TO S/N 10700) (EK: UP TO S/N 10300) |
| 1114 | 3-646-090-00 | s | RIVENT, NYLON |
| 1115 | 3-657-153-00 | o | HINGE |
| 1116 | 3-731-617-01 | o | SUSPENSION |
| 1117 | 3-731-640-01 | o | CHASSIS, UP |
| 1118 | 3-731-643-01 | o | CHASSIS, VF |
| 1119 | 3-731-644-01 | o | CHASSIS, B |
| 1120 | 3-731-666-01 | o | SPACER, V |
| 1121 | 3-731-674-01 | o | SHIELD, SY (UC: S/N 10151 AND HIGHER) |
| 1122 | 3-731-675-01 | o | SHEET, INSULATING, SY (UC: S/N 10151 AND HIGHER) |
| 1123 | 3-731-679-01 | o | SHEET, INSULATING, SV (UC: S/N 10151 AND HIGHER) (EK: S/N 10301 AND HIGHER) |
| 1124 | X-3731-616-1 | o | SHIELD ASSY, SV (UC: S/N 10151 AND HIGHER) (EK: S/N 10301 AND HIGHER) |
| 1125 | 7-623-926-11 | s | WASHER, POLY 5MM DIA., 0.8T |
| 1126 | 3-731-687-01 | o | SHEET, INSULATING, VA (UC: S/N 10701 AND HIGHER) (EK: S/N 10301 AND HIGHER) |

VO-8800 (1)
VO-8800P (1)

Front Panel and Function Key Blocks



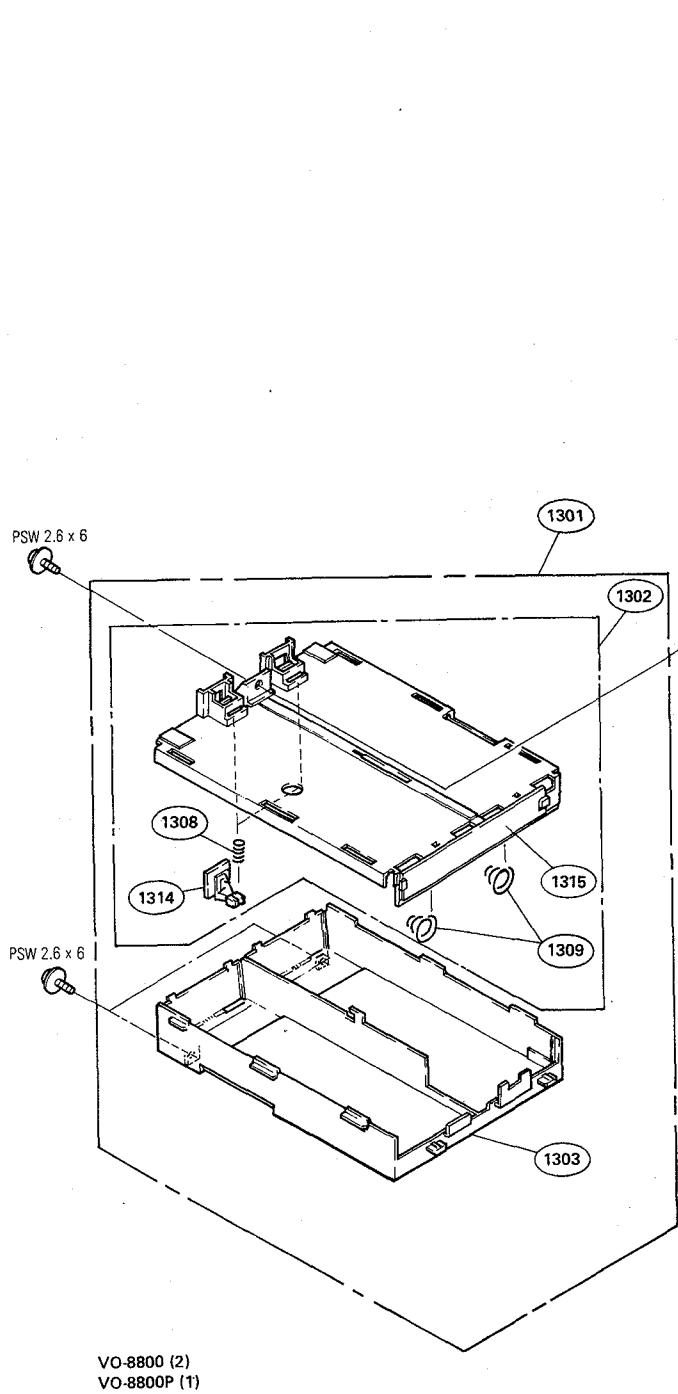
| No. | Part No. | SP | Description |
|------|--------------|----|-------------------------------|
| 1201 | A-6717-527-A | o | MOUNTED CIRCUIT BOARD, KY-147 |
| 1202 | A-6717-529-A | o | MOUNTED CIRCUIT BOARD, PD-44 |
| 1203 | X-3664-208-0 | s | KNOB ASSY, FADE |
| 1204 | X-3698-702-1 | s | KNOB ASSY, VOLUME |
| 1205 | X-3731-601-1 | s | LEVER (C) ASSY, SW |
| 1206 | X-3731-602-1 | s | LEVER (A) ASSY, SW |
| 1207 | X-3731-608-1 | o | PANEL SUB (RP) ASSY, F |
| 1208 | 1-520-495-11 | s | METER, LEVEL |
| 1209 | 1-520-495-31 | s | METER, LEVEL |
| 1210 | 3-686-076-31 | s | KEY TOP (B) |
| 1211 | 3-686-077-31 | s | KEY TOP (A) |
| 1212 | 3-686-077-51 | s | KEY TOP (A) |
| 1213 | 3-686-077-61 | s | KEY TOP (A) |
| 1214 | 3-686-082-01 | o | SPACER (B) |
| 1215 | 3-686-083-01 | o | SPACER (A) |
| 1216 | 3-686-084-01 | s | PUSH BUTTON |
| 1217 | 3-686-085-01 | s | PIN, PUSH BUTTON |
| 1218 | 3-686-086-01 | s | CUSHION, BUTTON |
| 1219 | 3-694-739-01 | o | SPRING |
| 1220 | 3-694-781-21 | s | BUTTON (A) |
| 1221 | 3-694-781-31 | s | BUTTON (A) |
| 1222 | 3-694-782-11 | s | BUTTON (B) |
| 1223 | 3-719-182-11 | o | HOLDER, LCD |
| 1224 | 3-731-607-01 | o | HOLDER (S), LED |
| 1225 | 3-731-608-01 | o | HOLDER (2 x 5), LED |
| 1226 | 3-731-609-01 | o | HOLDER (L), LED |
| 1227 | 3-731-616-01 | o | SHAFT, E LEVER |
| 1228 | 3-731-628-01 | o | SPRING |
| 1229 | 3-731-631-01 | s | LEVER, EJECT |
| 1230 | 8-719-902-27 | s | DIODE EBR3402S |
| 1231 | 8-719-928-51 | s | DIODE PR5551K |
| 1232 | 8-719-955-05 | s | DIODE BR5505S |

VO-8800 (1)
VO-8800P (1)

ORNAMENTAL PANEL BLOCK

ORNAMENTAL PANEL BLOCK

Ornamental Panel Block



| No. | Part No. | SP | Description |
|------|--------------|----|--|
| 1301 | A-6771-109-A | o | CASE ASSY, BT (UC: UP TO S/N 10700) (EK: UP TO S/N 10300) |
| | A-6771-109-C | o | CASE ASSY, BT (UC: S/N 10701 AND HIGHER) (EK: S/N 10301 AND HIGHER) |
| 1302 | A-6771-110-A | s | CASE (UPPER) ASSY, BT (UC: UP TO S/N 10700) (EK: UP TO S/N 10300) |
| | A-6711-110-C | s | CASE (UPPER) ASSY, BT (UC: S/N 10701 AND HIGHER) (EK: S/N 10301 AND HIGHER) |
| 1303 | A-6771-111-A | s | CASE (LOWER) ASSY, BT (UC: UP TO S/N 10700) (EK: UP TO S/N 10300) |
| | A-6711-111-B | s | CASE (LOWER) ASSY, BT (UC: S/N 10701 AND HIGHER) (EK: S/N 10301 AND HIGHER) |
| 1304 | X-3731-605-1 | o | CABINET (LOWER) ASSY |
| 1305 | X-3731-606-1 | o | CABINET (UPPER) ASSY |
| 1306 | X-3731-607-1 | s | COVER ASSY, C |
| 1307 | X-3731-611-1 | o | PANEL ASSY, CONNECTOR (for UC) |
| | X-3731-612-1 | o | PANEL (P) ASSY, CONNECTOR (for EK) |
| 1308 | 3-564-029-00 | s | SPRING, COMPRESSION |
| 1309 | 3-687-977-02 | s | SPRING (A), COMPRESSION |
| 1310 | 3-703-034-11 | s | LABEL, CAUTION (for J) |
| 1311 | 3-719-159-01 | s | SCREW (M3), (+BW) |
| 1312 | 3-731-605-01 | o | COVER, BKU |
| 1313 | 3-731-648-01 | o | LABEL, RF (for UC) |
| 1314 | 3-731-678-01 | s | BUTTON (II), SLIDE |
| 1315 | 1-630-549-11 | o | PRINTED CIRCUIT BOARD, BP-16 (UC: S/N 10701 AND HIGHER) (EK: S/N 10301 AND HIGHER) |

16-3. ELECTRICAL PARTS LIST

CAPACITOR, MICA, SILVERED

Part No. SP Description

1-107-026-00 s MICA 5.1pF+-0.5pF 500V
1-107-049-00 s MICA 8.2pF+-0.5pF 500V
1-107-202-00 s MICA 10pF 5% 500V
1-107-204-00 s MICA 12pF 5% 500V
1-107-206-00 s MICA 15pF 5% 500V

1-107-210-00 s MICA 22pF 5% 500V
1-107-211-00 s MICA 24pF 5% 500V
1-107-157-00 s MICA 27pF 5% 500V
1-107-158-00 s MICA 30pF 5% 500V
1-107-076-00 s MICA 43pF 5% 50V

1-107-077-00 s MICA 47pF 5% 50V
1-107-165-00 s MICA 56pF 5% 500V
1-107-036-00 s MICA 68pF 5% 500V
1-107-087-00 s MICA 120pF 5% 50V
1-109-538-00 s MICA 130pF 5% 100V

CAPACITOR, CHIP CERAMIC

Part No. SP Description

1-163-093-00 s CHIP CERAMIC 10pF 5% 50V
1-163-097-00 s CHIP CERAMIC 15pF 5% 50V
1-163-101-00 s CHIP CERAMIC 22pF 5% 50V
1-163-105-00 s CHIP CERAMIC 33pF 5% 50V
1-163-109-00 s CHIP CERAMIC 47pF 5% 50V

1-163-113-00 s CHIP CERAMIC 68pF 5% 50V
1-163-117-00 s CHIP CERAMIC 100pF 5% 50V
1-163-121-00 s CHIP CERAMIC 150pF 5% 50V
1-163-125-00 s CHIP CERAMIC 220pF 5% 50V
1-163-133-00 s CHIP CERAMIC 470pF 5% 50V

1-163-137-00 s CHIP CERAMIC 680pF 5% 50V
1-163-141-00 s CHIP CERAMIC 1000pF 5% 50V
1-163-145-00 s CHIP CERAMIC 1500pF 10% 50V
1-163-017-00 s CHIP CERAMIC 4700pF 10% 50V
1-163-019-00 s CHIP CERAMIC 6800pF 10% 50V

1-163-021-00 s CHIP CERAMIC 0.01 10% 50V
1-163-035-00 s CHIP CERAMIC 0.047 50V
1-163-038-00 s CHIP CERAMIC 0.1 50V

RESISTOR, CHIP

Part No. SP Description

1-216-295-00 s CHIP 0 5% 1/10W
1-216-298-00 s CHIP 2.2 5% 1/10W
1-216-001-00 s CHIP 10 5% 1/10W
1-216-009-00 s CHIP 22 5% 1/10W
1-216-013-00 s CHIP 33 5% 1/10W

1-216-017-00 s CHIP 47 5% 1/10W
1-216-025-00 s CHIP 100 5% 1/10W
1-216-029-00 s CHIP 150 5% 1/10W
1-216-033-00 s CHIP 220 5% 1/10W
1-216-035-00 s CHIP 270 5% 1/10W

1-216-037-00 s CHIP 330 5% 1/10W
1-216-041-00 s CHIP 470 5% 1/10W
1-216-043-00 s CHIP 560 5% 1/10W
1-216-045-00 s CHIP 680 5% 1/10W
1-216-047-00 s CHIP 820 5% 1/10W

1-216-049-00 s CHIP 1k 5% 1/10W
1-216-051-00 s CHIP 1.2k 5% 1/10W
1-216-053-00 s CHIP 1.5k 5% 1/10W
1-216-055-00 s CHIP 1.8k 5% 1/10W
1-216-057-00 s CHIP 2.2k 5% 1/10W

1-216-059-00 s CHIP 2.7k 5% 1/10W
1-216-061-00 s CHIP 3.3k 5% 1/10W
1-216-063-00 s CHIP 3.9k 5% 1/10W
1-216-065-00 s CHIP 4.7k 5% 1/10W
1-216-067-00 s CHIP 5.6k 5% 1/10W

1-216-069-00 s CHIP 6.8k 5% 1/10W
1-216-071-00 s CHIP 8.2k 5% 1/10W
1-216-073-00 s CHIP 10k 5% 1/10W
1-216-075-00 s CHIP 12k 5% 1/10W
1-216-077-00 s CHIP 15k 5% 1/10W

1-216-079-00 s CHIP 18k 5% 1/10W
1-216-081-00 s CHIP 22k 5% 1/10W
1-216-083-00 s CHIP 27k 5% 1/10W
1-216-085-00 s CHIP 33k 5% 1/10W
1-216-089-00 s CHIP 47k 5% 1/10W

1-216-091-00 s CHIP 56k 5% 1/10W
1-216-093-00 s CHIP 68k 5% 1/10W
1-216-095-00 s CHIP 82k 5% 1/10W
1-216-097-00 s CHIP 100k 5% 1/10W
1-216-099-00 s CHIP 120k 5% 1/10W

1-216-101-00 s CHIP 150k 5% 1/10W
1-216-105-00 s CHIP 220k 5% 1/10W
1-216-107-00 s CHIP 270k 5% 1/10W
1-216-109-00 s CHIP 330k 5% 1/10W
1-216-113-00 s CHIP 470k 5% 1/10W

1-216-117-00 s CHIP 680k 5% 1/10W
1-216-121-00 s CHIP 1.0M 5% 1/10W

RESISTOR, CARBON

Part No. SP Description

1-249-405-11 s CARBON 100 5% 1/4W
1-249-410-11 s CARBON 270 5% 1/4W
1-249-411-11 s CARBON 330 5% 1/4W
1-249-412-11 s CARBON 390 5% 1/4W
1-249-418-11 s CARBON 1.2k 5% 1/4W

1-249-425-11 s CARBON 4.7k 5% 1/4W
1-249-428-11 s CARBON 8.2k 5% 1/4W
1-249-429-11 s CARBON 10k 5% 1/4W
1-249-432-11 s CARBON 18k 5% 1/4W
1-249-435-11 s CARBON 33k 5% 1/4W

1-249-437-11 s CARBON 47k 5% 1/4W

RESISTOR, METAL

Part No. SP Description

1-215-373-31 s METAL 10 1% 1/6W
1-215-376-00 s METAL 13 1% 1/6W
1-215-394-00 s METAL 75 1% 1/4W
1-215-408-00 s METAL 300 1% 1/6W
1-215-414-00 s METAL 510 1% 1/6W

1-215-420-00 s METAL 910 1% 1/6W
1-215-421-00 s METAL 1.0k 1% 1/6W
1-215-422-00 s METAL 1.1k 1% 1/6W
1-215-428-00 s METAL 2.0k 1% 1/6W
1-215-434-00 s METAL 3.6k 1% 1/6W

1-215-438-00 s METAL 5.1k 1% 1/6W
1-215-460-00 s METAL 43k 1% 1/6W
1-215-476-00 s METAL 200k 1% 1/6W
1-215-478-00 s METAL 240k 1% 1/6W
1-215-479-00 s METAL 270k 1% 1/4W

1-215-490-00 s METAL 750k 1% 1/6W

INDUCTOR, MICRO

Part No. SP Description

1-408-408-00 s INDUCTOR, MICRO 8.2 5%
1-408-411-00 s INDUCTOR, MICRO 15 5%
1-408-413-00 s INDUCTOR, MICRO 22 5%
1-408-414-00 s INDUCTOR, MICRO 27 5%
1-408-416-00 s INDUCTOR, MICRO 39 5%

1-408-418-00 s INDUCTOR, MICRO 56 5%
1-408-419-00 s INDUCTOR, MICRO 68 5%
1-408-423-00 s INDUCTOR, MICRO 150 5%
1-408-424-00 s INDUCTOR, MICRO 180 5%
1-408-429-00 s INDUCTOR, MICRO 470 5%

BP-15 BOARD

Ref. No.
or Q'ty Part No. SP Description

This board is for Serial No. up to 10300.

1-629-914-11 o PRINTED CIRCUIT BOARD, BP-15

CN591 1-508-902-00 o CONNECTOR, 4P, MALE
CN592 1-508-950-00 s CONNECTOR, IL 4P, MALE

BP-16 BOARD

Ref. No.
or Q'ty Part No. SP Description

This board is for Serial No. 10301 and higher.

1-630-549-11 o PRINTED CIRCUIT BOARD, BP-16
CN1 1-508-950-00 s CONNECTOR, IL 4P, MALE

CM-23 BOARD

Ref. No.
or Q'ty Part No. SP Description

1-629-241-12 o PRINTED CIRCUIT BOARD, CM-23

CN1 1-568-179-11 s CONNECTOR, ROUND 14P, FEMALE

CN-271 BOARD

Ref. No.
or Q'ty Part No. SP Description

1-629-248-11 o PRINTED CIRCUIT BOARD, CN-271

CN543 1-563-334-11 o HOUSING, 32P

CP-135 BOARD

Ref. No.
or Q'ty Part No. SP Description

A-6727-050-A o MOUNTED CIRCUIT BOARD, CP-135
3-621-124-00 s SPACER
3-731-611-01 o SPACER, HM
3-731-665-01 o CHASSIS, XL

C1 1-124-584-00 s ELECT 100uF 20% 10V
C3 1-124-584-00 s ELECT 100uF 20% 10V
C4 1-124-584-00 s ELECT 100uF 20% 10V
C5 1-126-157-11 s ELECT 10uF 20% 16V
C6 1-162-732-11 s CERAMIC 820PF 1% 50V

C7 1-124-584-00 s ELECT 100uF 20% 10V
C8 1-126-157-11 s ELECT 10uF 20% 16V
C9 1-126-157-11 s ELECT 10uF 20% 16V
C12 1-126-160-11 s ELECT 1uF 20% 50V
C13 1-126-157-11 s ELECT 10uF 20% 16V

C14 1-124-589-11 s ELECT 47uF 20% 16V
C15 1-107-075-00 s MICA 39PF 5% 50V
C18 1-126-157-11 s ELECT 10uF 20% 16V
C19 1-130-491-00 s MYLAR 0.047uF 5% 50V
C20 1-130-491-00 s MYLAR 0.047uF 5% 50V

C22 1-131-587-11 s TANTALUM 0.68uF 5% 35V
C23 1-164-161-11 s CERAMIC, CHIP 0.0022uF 10% 100V
C26 1-124-225-00 s ELECT 100uF 20% 6.3V
C28 1-131-347-00 s TANTALUM 1uF 10% 35V
C29 1-124-589-11 s ELECT 47uF 20% 16V

C30 1-164-161-11 s CERAMIC, CHIP 0.0022uF 10% 100V
C35 1-131-347-00 s TANTALUM 1uF 10% 35V
C36 1-130-481-00 s MYLAR 0.0068uF 5% 50V
C39 1-126-157-11 s ELECT 10uF 20% 16V
C41 1-124-589-11 s ELECT 47uF 20% 16V

C43 1-124-589-11 s ELECT 47uF 20% 16V
C48 1-107-086-00 s MICA 110PF 5% 50V
C49 1-124-589-11 s ELECT 47uF 20% 16V
C51 1-107-159-00 s MICA 33PF 5% 500V
C53 1-107-208-00 s MICA 18PF 5% 500V

C54 1-126-157-11 s ELECT 10uF 20% 16V
C71 1-163-037-11 s CERAMIC, CHIP 0.022uF 10% 25V
C75 1-124-225-00 s ELECT 100uF 20% 6.3V
C76 1-163-021-00 s CERAMIC, CHIP 0.01uF 5% 50V
C77 1-163-021-00 s CERAMIC, CHIP 0.01uF 5% 50V

C78 1-163-021-00 s CERAMIC, CHIP 0.01uF 5% 50V
C79 1-124-589-11 s ELECT 47uF 20% 16V
C81 1-124-589-11 s ELECT 47uF 20% 16V
C83 1-124-584-00 s ELECT 100uF 20% 10V
C84 1-124-225-00 s ELECT 100uF 20% 6.3V

C85 1-163-091-00 s MICA 8PF 5% 50V
C86 1-107-044-00 s MICA 3.3PF 500V
C88 1-124-225-00 s ELECT 100uF 20% 6.3V
C89 1-162-873-21 s CERAMIC 56PF 5% 50V
C95 1-124-589-11 s ELECT 47uF 20% 16V

C96 1-162-878-21 s CERAMIC 91PF 5% 50V
C97 1-126-157-11 s ELECT 10uF 20% 16V
C98 1-124-584-00 s ELECT 100uF 20% 10V
C503 1-126-157-11 s ELECT 10uF 20% 16V
C504 1-126-157-11 s ELECT 10uF 20% 16V

C505 1-124-225-00 s ELECT 100uF 20% 6.3V
C507 1-124-225-00 s ELECT 100uF 20% 6.3V
C513 1-126-157-11 s ELECT 10uF 20% 16V
C514 1-126-157-11 s ELECT 10uF 20% 16V
C533 1-126-157-11 s ELECT 10uF 20% 16V

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

(CP-135 BOARD)

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|--|
| C534 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C601 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C602 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C603 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C604 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C605 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C606 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C607 | 1-126-160-11 | s ELECT 1uF 20% 50V |
| C608 | 1-126-176-11 | s ELECT 220uF 20% 10V |
| C610 | 1-126-101-11 | s ELECT 100uF 20% 16V |
| C611 | 1-126-101-11 | s ELECT 100uF 20% 16V |
| C612 | 1-163-021-00 | s CERAMIC, CHIP 0.01uF 5% 50V |
| C613 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C614 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C651 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C652 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C701 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C702 | 1-126-101-11 | s ELECT 100uF 20% 16V |
| C703 | 1-126-101-11 | s ELECT 100uF 20% 16V |
| C704 | 1-124-120-11 | s ELECT 220uF 20% 25V |
| C705 | 1-124-120-11 | s ELECT 220uF 20% 25V |
| C801 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C802 | 1-126-101-11 | s ELECT 100uF 20% 16V |
| C803 | 1-126-101-11 | s ELECT 100uF 20% 16V |
| C804 | 1-124-120-11 | s ELECT 220uF 20% 25V |
| C805 | 1-124-120-11 | s ELECT 220uF 20% 25V |
| CN601 | 1-506-747-11 | s CONNECTOR, DIN 64P, MALE |
| CN602 | 1-506-468-11 | s CONNECTOR, 3P, MALE |
| CN604 | 1-565-282-11 | o CONNECTOR, XLR 3P, FEMALE "AUDIO IN CH-1/L/DUB" |
| CN605 | 1-565-282-11 | o CONNECTOR, XLR 3P, FEMALE "AUDIO IN CH-2/R" |
| CN606 | 1-565-281-11 | o CONNECTOR, XLR 3P, MALE "AUDIO OUT CH-1/L(MONITOR)" |
| CN607 | 1-565-281-11 | o CONNECTOR, XLR 3P, MALE "AUDIO OUT CH-2/R" |
| D1 | 8-719-100-03 | s DIODE 1S2835 |
| D2 | 8-719-400-18 | s DIODE MA152WK |
| D3 | 8-719-104-10 | s DIODE 1SS99 |
| D4 | 8-719-100-05 | s DIODE 1S2837 |
| D5 | 8-719-100-05 | s DIODE 1S2837 |
| D6 | 8-719-105-64 | s DIODE RD4.3M-B2 |
| D551 | 8-719-911-19 | s DIODE 1SS119 |
| D552 | 8-719-911-19 | s DIODE 1SS119 |
| D601 | 8-719-110-17 | s DIODE RD10ES-B2 |
| D602 | 8-719-105-82 | s DIODE RD5.1M-B2 |
| D603 | 8-719-800-76 | s DIODE 1SS226 |
| DL1 | 1-415-404-11 | s DELAY LINE 226nS |
| DL2 | 1-415-404-11 | s DELAY LINE 226nS |
| FL1 | 1-235-475-12 | s FILTER, LOW-PASS |
| FL2 | 1-236-029-12 | s FILTER, BANDPASS 4.2MHZ |
| FL3 | 1-236-040-11 | s FILTER, LOW-PASS |
| IC1 | 8-759-208-11 | s IC TC4053BFHB |
| IC2 | 8-759-208-18 | s IC TC4528BFHB |
| IC3 | 8-752-006-12 | s IC CX20061 |
| IC4 | 8-759-008-82 | s IC MC14013BF |
| IC5 | 8-759-200-60 | s IC TA7060AP |

(CP-135 BOARD)

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|------------------------|
| IC6 | 8-759-100-93 | s IC UPC393G2 |
| IC7 | 8-749-938-90 | s IC BX389 |
| IC8 | 8-752-201-30 | s IC CX22013 |
| IC9 | 8-749-938-90 | s IC BX389 |
| IC10 | 8-752-030-30 | s IC CXA1020P |
| IC11 | 8-749-938-90 | s IC BX389 |
| IC12 | 8-752-006-12 | s IC CX20061 |
| IC501 | 8-759-700-84 | s IC NJM2041M-D |
| IC502 | 8-759-700-84 | s IC NJM2041M-D |
| IC503 | 8-759-700-84 | s IC NJM2041M-D |
| IC504 | 8-759-700-84 | s IC NJM2041M-D |
| IC601 | 8-759-700-43 | s IC NJM4558M |
| IC701 | 8-759-700-94 | s IC NJM5532M |
| IC801 | 8-759-700-94 | s IC NJM5532M |
| L2 | 1-410-476-11 | s INDUCTOR 33uH |
| L4 | 1-410-482-31 | s INDUCTOR 100uH |
| L5 | 1-410-482-31 | s INDUCTOR 100uH |
| L6 | 1-410-482-31 | s INDUCTOR 100uH |
| L8 | 1-410-482-31 | s INDUCTOR 100uH |
| L9 | 1-410-482-31 | s INDUCTOR 100uH |
| L10 | 1-410-466-41 | s INDUCTOR 4.7uH |
| L11 | 1-410-482-31 | s INDUCTOR 100uH |
| L12 | 1-410-476-11 | s INDUCTOR 33uH |
| L15 | 1-410-468-11 | s INDUCTOR 6.8uH |
| Q1 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q2 | 8-729-201-05 | s TRANSISTOR 2SC2878-B |
| Q3 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q4 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q5 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q9 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q11 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q12 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q13 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q14 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q15 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q16 | 8-729-100-66 | s TRANSISTOR 2SC1623 |
| Q17 | 8-729-100-66 | s TRANSISTOR 2SC1623 |
| Q18 | 8-729-100-66 | s TRANSISTOR 2SC1623 |
| Q19 | 8-729-100-66 | s TRANSISTOR 2SC1623 |
| Q20 | 8-729-175-73 | s TRANSISTOR 2SC2757 |
| Q21 | 8-729-100-66 | s TRANSISTOR 2SC1623 |
| Q22 | 8-729-175-73 | s TRANSISTOR 2SC2757 |
| Q23 | 8-729-122-63 | s TRANSISTOR 2SA1226 |
| Q24 | 8-729-122-63 | s TRANSISTOR 2SA1226 |
| Q25 | 8-729-175-73 | s TRANSISTOR 2SC2757 |
| Q26 | 8-729-100-66 | s TRANSISTOR 2SC1623 |
| Q27 | 8-729-122-63 | s TRANSISTOR 2SA1226 |
| Q28 | 8-729-100-66 | s TRANSISTOR 2SC1623 |
| Q29 | 8-729-122-63 | s TRANSISTOR 2SA1226 |
| Q30 | 8-729-175-73 | s TRANSISTOR 2SC2757 |
| Q31 | 8-729-175-73 | s TRANSISTOR 2SC2757 |
| Q32 | 8-729-122-63 | s TRANSISTOR 2SA1226 |
| Q33 | 8-729-122-63 | s TRANSISTOR 2SA1226 |
| Q34 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q35 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q36 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q37 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q38 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q39 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

(CP-135 BOARD)

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|-------------------------------|
| Q40 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q41 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q42 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q43 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q45 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q501 | 8-729-202-38 | s TRANSISTOR 2SC3326N |
| Q601 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q602 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q603 | 8-729-378-84 | s TRANSISTOR 2SD788 |
| Q604 | 8-729-202-38 | s TRANSISTOR 2SC3326N |
| Q605 | 8-729-202-38 | s TRANSISTOR 2SC3326N |
| Q651 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q701 | 8-729-202-38 | s TRANSISTOR 2SC3326N |
| Q702 | 8-729-202-38 | s TRANSISTOR 2SC3326N |
| Q801 | 8-729-202-38 | s TRANSISTOR 2SC3326N |
| Q802 | 8-729-202-38 | s TRANSISTOR 2SC3326N |
| R9 | 1-215-442-00 | s METAL 7.5K 1% 1/6W |
| R12 | 1-215-442-00 | s METAL 7.5K 1% 1/6W |
| R26 | 1-215-400-00 | s METAL 130 1% 1/6W |
| R27 | 1-215-416-00 | s METAL 620 1% 1/6W |
| R33 | 1-216-686-11 | s METAL, CHIP 30K 0.5% 1/10W |
| R70 | 1-215-417-00 | s METAL 680 1% 1/6W |
| R78 | 1-215-405-00 | s METAL 220 1% 1/6W |
| R81 | 1-215-405-00 | s METAL 220 1% 1/6W |
| R88 | 1-215-405-00 | s METAL 220 1% 1/6W |
| R91 | 1-215-405-00 | s METAL 220 1% 1/6W |
| R133 | 1-215-416-00 | s METAL 620 1% 1/6W |
| R137 | 1-215-443-00 | s METAL 8.2K 1% 1/6W |
| R139 | 1-215-413-00 | s METAL 470 1% 1/6W |
| R142 | 1-215-419-00 | s METAL 820 1% 1/6W |
| R143 | 1-216-653-11 | s METAL, CHIP 1.2K 0.5% 1/10W |
| R149 | 1-215-419-00 | s METAL 820 1% 1/6W |
| R150 | 1-216-635-11 | s METAL, CHIP 220 0.5% 1/10W |
| R164 | 1-215-392-00 | s METAL 62 1% 1/6W |
| R504 | 1-216-627-11 | s METAL, CHIP 100 0.5% 1/10W |
| R505 | 1-216-627-11 | s METAL, CHIP 100 0.5% 1/10W |
| R511 | 1-216-657-11 | s METAL, CHIP 1.8K 0.5% 1/10W |
| R512 | 1-216-657-11 | s METAL, CHIP 1.8K 0.5% 1/10W |
| R513 | 1-216-667-11 | s METAL, CHIP 4.7K 0.5% 1/10W |
| R514 | 1-216-641-11 | s METAL, CHIP 390 0.5% 1/10W |
| R515 | 1-216-667-11 | s METAL, CHIP 4.7K 0.5% 1/10W |
| R517 | 1-216-699-11 | s METAL, CHIP 100K 0.5% 1/10W |
| R518 | 1-216-699-11 | s METAL, CHIP 100K 0.5% 1/10W |
| R519 | 1-216-633-11 | s METAL, CHIP 180 0.5% 1/10W |
| R521 | 1-216-667-11 | s METAL, CHIP 4.7K 0.5% 1/10W |
| R522 | 1-216-667-11 | s METAL, CHIP 4.7K 0.5% 1/10W |
| R523 | 1-216-667-11 | s METAL, CHIP 4.7K 0.5% 1/10W |
| R524 | 1-216-667-11 | s METAL, CHIP 4.7K 0.5% 1/10W |
| R525 | 1-216-667-11 | s METAL, CHIP 4.7K 0.5% 1/10W |
| R526 | 1-216-667-11 | s METAL, CHIP 4.7K 0.5% 1/10W |
| R527 | 1-216-647-11 | s METAL, CHIP 680 0.5% 1/10W |
| R531 | 1-216-657-11 | s METAL, CHIP 1.8K 0.5% 1/10W |
| R532 | 1-216-657-11 | s METAL, CHIP 1.8K 0.5% 1/10W |
| R533 | 1-216-667-11 | s METAL, CHIP 4.7K 0.5% 1/10W |
| R534 | 1-216-641-11 | s METAL, CHIP 390 0.5% 1/10W |
| R535 | 1-216-667-11 | s METAL, CHIP 4.7K 0.5% 1/10W |

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| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|-------------------------------|
| R537 | 1-216-699-11 | s METAL, CHIP 100K 0.5% 1/10W |
| R538 | 1-216-699-11 | s METAL, CHIP 100K 0.5% 1/10W |
| R539 | 1-216-633-11 | s METAL, CHIP 180 0.5% 1/10W |
| R541 | 1-216-667-11 | s METAL, CHIP 4.7K 0.5% 1/10W |
| R542 | 1-216-667-11 | s METAL, CHIP 4.7K 0.5% 1/10W |
| R543 | 1-216-667-11 | s METAL, CHIP 4.7K 0.5% 1/10W |
| R544 | 1-216-667-11 | s METAL, CHIP 4.7K 0.5% 1/10W |
| R545 | 1-216-667-11 | s METAL, CHIP 4.7K 0.5% 1/10W |
| R546 | 1-216-667-11 | s METAL, CHIP 4.7K 0.5% 1/10W |
| R547 | 1-216-647-11 | s METAL, CHIP 680 0.5% 1/10W |
| R606 | 1-216-688-11 | s METAL, CHIP 36K 0.5% 1/10W |
| R619 | 1-216-015-00 | s METAL 39 5% 1/10W |
| R703 | 1-216-668-11 | s METAL, CHIP 5.1K 0.5% 1/10W |
| R704 | 1-216-679-11 | s METAL, CHIP 15K 0.5% 1/10W |
| R705 | 1-216-668-11 | s METAL, CHIP 5.1K 0.5% 1/10W |
| R706 | 1-216-631-11 | s METAL, CHIP 150 0.5% 1/10W |
| R707 | 1-216-679-11 | s METAL, CHIP 15K 0.5% 1/10W |
| R713 | 1-216-668-11 | s METAL, CHIP 5.1K 0.5% 1/10W |
| R714 | 1-216-679-11 | s METAL, CHIP 15K 0.5% 1/10W |
| R715 | 1-216-668-11 | s METAL, CHIP 5.1K 0.5% 1/10W |
| R716 | 1-216-640-11 | s METAL, CHIP 360 0.5% 1/10W |
| R717 | 1-216-679-11 | s METAL, CHIP 15K 0.5% 1/10W |
| R803 | 1-216-668-11 | s METAL, CHIP 5.1K 0.5% 1/10W |
| R804 | 1-216-679-11 | s METAL, CHIP 15K 0.5% 1/10W |
| R805 | 1-216-668-11 | s METAL, CHIP 5.1K 0.5% 1/10W |
| R806 | 1-216-631-11 | s METAL, CHIP 150 0.5% 1/10W |
| R807 | 1-216-679-11 | s METAL, CHIP 15K 0.5% 1/10W |
| R813 | 1-216-668-11 | s METAL, CHIP 5.1K 0.5% 1/10W |
| R814 | 1-216-679-11 | s METAL, CHIP 15K 0.5% 1/10W |
| R815 | 1-216-668-11 | s METAL, CHIP 5.1K 0.5% 1/10W |
| R816 | 1-216-640-11 | s METAL, CHIP 360 0.5% 1/10W |
| R817 | 1-216-679-11 | s METAL, CHIP 15K 0.5% 1/10W |
| RV2 | 1-230-521-11 | s RES, ADJ, METAL 2.2K |
| RV3 | 1-230-520-11 | s RES, ADJ, METAL 1K |
| RV4 | 1-230-523-11 | s RES, ADJ, METAL 10K |
| RV5 | 1-230-519-11 | s RES, ADJ, METAL 470 |
| RV6 | 1-230-519-11 | s RES, ADJ, METAL 470 |
| RV7 | 1-230-519-11 | s RES, ADJ, METAL 470 |
| RV8 | 1-230-520-11 | s RES, ADJ, METAL 1K |
| RV9 | 1-230-519-11 | s RES, ADJ, METAL 470 |
| S1 | 1-553-510-00 | s SWITCH, SLIDE |
| S301 | 1-570-845-11 | s SWITCH, SLIDE |
| S302 | 1-570-845-11 | s SWITCH, SLIDE |
| S303 | 1-570-845-11 | s SWITCH, SLIDE |
| S501 | 1-554-673-00 | s SWITCH, SLIDE |
| S502 | 1-554-673-00 | s SWITCH, SLIDE |
| S503 | 1-570-845-11 | s SWITCH, SLIDE |
| S504 | 1-570-845-11 | s SWITCH, SLIDE |
| S601 | 1-570-835-11 | s SWITCH, SLIDE |
| TM1 | 1-548-119-21 | s HOURS METER |

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

CR-35 BOARD

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|---------------------------------|
| | A-6727-052-A | o MOUNTED CIRCUIT BOARD, CR-35 |
| | 3-621-124-00 | s SPACER |
| C2 | 1-130-471-00 | s MYLAR 0.001uF 5% 50V |
| C6 | 1-107-208-00 | s MICA 18PF 5% 500V |
| C7 | 1-126-160-11 | s ELECT 1uF 20% 50V |
| C10 | 1-163-037-11 | s CERAMIC, CHIP 0.022uF 10% 25V |
| C14 | 1-126-154-11 | s ELECT 47uF 20% 6.3V |
| C20 | 1-126-101-11 | s ELECT 100uF 20% 16V |
| C22 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C24 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C26 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C28 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C30 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C32 | 1-124-120-11 | s ELECT 220uF 20% 25V |
| C34 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C35 | 1-131-349-00 | s TANTALUM 2.2uF 10% 35V |
| C36 | 1-130-483-00 | s MYLAR 0.01uF 5% 50V |
| C37 | 1-124-234-00 | s ELECT 22uF 20% 16V |
| C38 | 1-131-350-00 | s TANTALUM 3.3uF 10% 35V |
| C39 | 1-124-234-00 | s ELECT 22uF 20% 16V |
| C40 | 1-131-350-00 | s TANTALUM 3.3uF 10% 35V |
| C43 | 1-109-542-00 | s MICA 220PF 5% 100V |
| C44 | 1-101-886-00 | s CERAMIC 62PF 5% 50V |
| C47 | 1-163-037-11 | s CERAMIC, CHIP 0.022uF 10% 25V |
| C51 | 1-126-160-11 | s ELECT 1uF 20% 50V |
| C52 | 1-130-475-00 | s MYLAR 0.0022uF 5% 50V |
| C53 | 1-130-478-00 | s MYLAR 0.0039uF 5% 50V |
| C54 | 1-131-343-00 | s TANTALUM 0.22uF 10% 35V |
| C55 | 1-130-483-00 | s MYLAR 0.01uF 5% 50V |
| C56 | 1-163-037-11 | s CERAMIC, CHIP 0.022uF 10% 25V |
| C57 | 1-131-363-00 | s TANTALUM 4.7uF 10% 20V |
| C59 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C61 | 1-131-344-00 | s TANTALUM 0.33uF 10% 35V |
| C62 | 1-130-478-00 | s MYLAR 0.0039uF 5% 50V |
| C63 | 1-130-479-00 | s MYLAR 0.0047uF 5% 50V |
| C64 | 1-130-481-00 | s MYLAR 0.0068uF 5% 50V |
| C65 | 1-124-120-11 | s ELECT 220uF 20% 25V |
| C66 | 1-130-481-00 | s MYLAR 0.0068uF 5% 50V |
| C67 | 1-130-471-00 | s MYLAR 0.001uF 5% 50V |
| C68 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C69 | 1-131-344-00 | s TANTALUM 0.33uF 10% 35V |
| C71 | 1-126-163-11 | s ELECT 4.7uF 20% 50V |
| C72 | 1-107-044-00 | s MICA 3.3PF 500V |
| C77 | 1-163-037-11 | s CERAMIC, CHIP 0.022uF 10% 25V |
| C81 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C83 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| CN701 | 1-566-282-11 | o CONNECTOR, 20P, MALE |
| D1 | 8-719-100-05 | s DIODE 1S2837 |
| D2 | 8-719-911-19 | s DIODE 1SS119 |
| D3 | 8-719-911-19 | s DIODE 1SS119 |
| D4 | 8-719-915-43 | s DIODE, VARICAP FC54M |
| D5 | 8-719-100-05 | s DIODE 1S2837 |
| D6 | 8-719-101-97 | s DIODE 1SS97-1 |
| D7 | 8-719-101-97 | s DIODE 1SS97-1 |
| D8 | 8-719-800-76 | s DIODE 1SS226 |
| D9 | 8-719-815-59 | s DIODE 1S1555-S |
| D10 | 8-719-100-05 | s DIODE 1S2837 |

(CR-35 BOARD)

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|-------------------------------|
| FL1 | 1-236-029-12 | s FILTER, BANDPASS 4.2MHZ |
| FL2 | 1-235-471-11 | s FILTER, LOW-PASS |
| FL3 | 1-231-377-21 | s FILTER, BANDPASS 5.4MHZ |
| IC1 | 8-759-908-59 | s IC CX859 |
| IC2 | 8-750-000-46 | s IC CX872 |
| IC3 | 8-741-126-40 | s IC BX1264 |
| IC4 | 8-741-126-20 | s IC BX1262 |
| IC5 | 8-752-006-12 | s IC CX20061 |
| IC6 | 8-759-208-10 | s IC TC4053BPHB |
| L1 | 1-410-494-11 | s INDUCTOR 1mH |
| L5 | 1-410-482-31 | s INDUCTOR 100uH |
| L6 | 1-410-482-31 | s INDUCTOR 100uH |
| L7 | 1-410-482-31 | s INDUCTOR 100uH |
| L8 | 1-410-482-31 | s INDUCTOR 100uH |
| L9 | 1-410-482-31 | s INDUCTOR 100uH |
| L10 | 1-410-482-31 | s INDUCTOR 100uH |
| L11 | 1-410-482-31 | s INDUCTOR 100uH |
| L13 | 1-408-072-00 | s INDUCTOR 47uH |
| L15 | 1-410-489-11 | s INDUCTOR 390uH |
| L16 | 1-410-482-31 | s INDUCTOR 100uH |
| L17 | 1-410-482-31 | s INDUCTOR 100uH |
| LV1 | 1-407-572-00 | s COIL, VAR 33uH |
| Q2 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q3 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q4 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q5 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q8 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q9 | 8-729-202-38 | s TRANSISTOR 2SC3326N |
| Q10 | 8-729-202-38 | s TRANSISTOR 2SC3326N |
| Q11 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q12 | 8-729-100-66 | s TRANSISTOR 2SC1623 |
| Q13 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q14 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q15 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q16 | 8-729-202-38 | s TRANSISTOR 2SC3326N |
| Q17 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q18 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| R1 | 1-216-639-11 | s METAL, CHIP 330 0.5% 1/10W |
| R3 | 1-216-651-11 | s METAL, CHIP 1K 0.5% 1/10W |
| R7 | 1-216-657-11 | s METAL, CHIP 1.8K 0.5% 1/10W |
| R12 | 1-216-644-11 | s METAL, CHIP 510 0.5% 1/10W |
| R13 | 1-216-644-11 | s METAL, CHIP 510 0.5% 1/10W |
| R19 | 1-216-651-11 | s METAL, CHIP 1K 0.5% 1/10W |
| R20 | 1-216-651-11 | s METAL, CHIP 1K 0.5% 1/10W |
| R32 | 1-216-696-11 | s METAL, CHIP 75K 0.5% 1/10W |
| R86 | 1-216-748-11 | s METAL, CHIP 39K 1% 1/10W |
| R98 | 1-216-666-11 | s METAL, CHIP 4.3K 0.5% 1/10W |
| RV1 | 1-230-524-11 | s RES, ADJ, METAL 22K |
| RV2 | 1-230-520-11 | s RES, ADJ, METAL 1K |
| RV3 | 1-230-522-11 | s RES, ADJ, METAL 4.7K |
| RV4 | 1-230-526-11 | s RES, ADJ, METAL 47K |
| RV5 | 1-230-521-11 | s RES, ADJ, METAL 2.2K |
| RV6 | 1-230-522-11 | s RES, ADJ, METAL 4.7K |
| RV7 | 1-230-523-11 | s RES, ADJ, METAL 10K |
| RV8 | 1-230-523-11 | s RES, ADJ, METAL 10K |
| RV9 | 1-230-524-11 | s RES, ADJ, METAL 22K |
| RV10 | 1-230-523-11 | s RES, ADJ, METAL 10K |

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

(CR-35 BOARD)

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|--------------------------|
| RV11 | 1-230-524-11 | s RES, ADJ, METAL 22K |
| RV12 | 1-230-522-11 | s RES, ADJ, METAL 4.7K |
| RV13 | 1-230-520-11 | s RES, ADJ, METAL 1K |
| T1 | 1-425-880-21 | s TRANSFORMER, BURST AMP |
| X1 | 1-527-231-00 | s CRYSTAL 4.433618MHz |

DU-58 BOARD

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|--------------------------------|
| | 1-611-954-11 | o PRINTED CIRCUIT BOARD, DU-58 |

DUS-4 BOARD

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|--------------------------------|
| | 1-611-963-11 | o PRINTED CIRCUIT BOARD, DUS-4 |
| S1 | 1-570-816-11 | s SWITCH, REED |

DUS-262 BOARD

| Ref. No. or Q'ty | Part No. | SP Description |
|--|--------------|----------------------------------|
| All of the component parts on this board are supplied together when you order the VA-76 board. | | |
| | 1-629-228-11 | o PRINTED CIRCUIT BOARD, DUS-262 |
| CN561 | 1-563-693-11 | o CONNECTOR, 20P, FEMALE |

HN-102 BOARD

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|---------------------------------|
| | A-6725-667-A | o MOUNTED CIRCUIT BOARD, HN-102 |
| CN801 | 1-563-017-11 | o CONNECTOR, FPC 30P, MALE |
| CN807 | 1-506-482-11 | s CONNECTOR, 3P, MALE |
| CN808 | 1-506-482-11 | s CONNECTOR, 3P, MALE |
| CN809 | 1-506-482-11 | s CONNECTOR, 3P, MALE |
| CN810 | 1-506-482-11 | s CONNECTOR, 3P, MALE |
| CN811 | 1-506-482-11 | s CONNECTOR, 3P, MALE |
| CN812 | 1-506-482-11 | s CONNECTOR, 3P, MALE |
| CN813 | 1-506-482-11 | s CONNECTOR, 3P, MALE |
| CN814 | 1-506-482-11 | s CONNECTOR, 3P, MALE |
| CN815 | 1-506-482-11 | s CONNECTOR, 3P, MALE |
| CN816 | 1-506-482-11 | s CONNECTOR, 3P, MALE |
| CN817 | 1-506-482-11 | s CONNECTOR, 3P, MALE |
| CN818 | 1-506-482-11 | s CONNECTOR, 3P, MALE |
| CN819 | 1-506-482-11 | s CONNECTOR, 3P, MALE |
| CN820 | 1-506-482-11 | s CONNECTOR, 3P, MALE |
| CN821 | 1-506-482-11 | s CONNECTOR, 3P, MALE |

HP-45 BOARD

| Ref. No. or Q'ty | Part No. | SP Description |
|--|--------------|--------------------------------|
| All of the component parts on this board are supplied together when you order the VA-76 board. | | |
| | 1-629-242-12 | o PRINTED CIRCUIT BOARD, HP-45 |
| J601 | 1-507-863-51 | s JACK, PHONE |
| RV651 | 1-237-790-21 | s RES, VAR CARBON 10K |

KY-147 BOARD

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|---------------------------------|
| | A-6717-527-A | o MOUNTED CIRCUIT BOARD, KY-147 |
| | 3-719-182-11 | o HOLDER, LCD |
| | 3-731-607-01 | o HOLDER (S), LED |
| | 3-731-608-01 | o HOLDER (2X5), LED |
| | 3-731-609-01 | o HOLDER (L), LED |
| C1 | 1-126-153-11 | s ELECT 22uF 20% 6.3V |
| C3 | 1-126-096-11 | s ELECT 10uF 20% 35V |
| C4 | 1-126-153-11 | s ELECT 22uF 20% 6.3V |
| C17 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| CN302 | 1-506-482-11 | s CONNECTOR, 3P, MALE |
| D2 | 8-719-945-13 | s DIODE SLH-34YC3F |
| D3 | 8-719-945-13 | s DIODE SLH-34YC3F |
| D4 | 8-719-945-13 | s DIODE SLH-34YC3F |
| D5 | 8-719-945-13 | s DIODE SLH-34YC3F |
| D6 | 8-719-902-27 | s LED EBR3402S, RED |
| D7 | 8-719-915-45 | s DIODE SLP162B |
| D8 | 8-719-915-45 | s DIODE SLP162B |
| D9 | 8-719-902-27 | s LED EBR3402S, RED |
| D10 | 8-719-915-45 | s DIODE SLP162B |
| D11 | 8-719-902-27 | s LED EBR3402S, RED |
| D12 | 8-719-955-05 | s DIODE BR5505S |
| D13 | 8-719-100-03 | s DIODE 1S2835 |
| IC1 | 8-759-982-98 | s IC MB88544-168M |
| IC2 | 8-759-913-99 | s IC MB88201-173N |
| IC3 | 1-808-016-11 | s ARRAY, LED |
| LCD1 | 1-807-981-11 | s LCD |
| ME1001 | 1-520-495-11 | s METER, LEVEL |
| ME1002 | 1-520-495-31 | s METER, LEVEL |
| Q1 | 8-729-308-92 | s TRANSISTOR 2SD789-03B |
| Q2 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q3 | 8-729-900-52 | s TRANSISTOR DTC114YK |
| Q4 | 8-729-900-52 | s TRANSISTOR DTC114YK |
| Q5 | 8-729-900-52 | s TRANSISTOR DTC114YK |
| Q6 | 8-729-900-52 | s TRANSISTOR DTC114YK |
| Q7 | 8-729-900-52 | s TRANSISTOR DTC114YK |
| Q8 | 8-729-900-52 | s TRANSISTOR DTC114YK |
| Q9 | 8-729-900-52 | s TRANSISTOR DTC114YK |
| Q10 | 8-729-100-66 | s TRANSISTOR 2SC1623 |
| Q11 | 8-729-100-66 | s TRANSISTOR 2SC1623 |
| Q12 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q13 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q14 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q15 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| S1 | 1-572-399-21 | o SWITCH, TACTILE |
| S2 | 1-572-399-21 | o SWITCH, TACTILE |
| S3 | 1-553-739-21 | s SWITCH, TACTILE |
| S4 | 1-553-739-21 | s SWITCH, TACTILE |
| S5 | 1-572-399-21 | o SWITCH, TACTILE |
| S6 | 1-553-739-21 | s SWITCH, TACTILE |
| S7 | 1-553-739-21 | s SWITCH, TACTILE |
| S8 | 1-554-303-21 | s SWITCH, TACTILE |
| S9 | 1-570-845-11 | s SWITCH, SLIDE |
| S10 | 1-570-845-11 | s SWITCH, SLIDE |
| S11 | 1-554-303-21 | s SWITCH, TACTILE |
| S12 | 1-554-303-21 | s SWITCH, TACTILE |

(KY-147 BOARD)

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|------------------------------|
| X1 | 1-567-143-00 | s RESONATOR, CERAMIC 6.00MHz |
| X2 | 1-567-192-11 | s RESONATOR, CERAMIC 4.00MHz |

LED-69 BOARD

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|---------------------------------|
| | 1-629-236-11 | o PRINTED CIRCUIT BOARD, LED-69 |
| D1 | 8-719-912-39 | s DIODE SLR-932A |

LED-70 BOARD

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|---------------------------------|
| | 1-629-237-11 | o PRINTED CIRCUIT BOARD, LED-70 |
| D1 | 8-719-912-39 | s DIODE SLR-932A |

PC-22 BOARD

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|--------------------------------|
| | 1-611-960-11 | o PRINTED CIRCUIT BOARD, PC-22 |
| R1 | 1-249-417-11 | s CARBON 1K 5% 1/4W |
| IC1 | 8-719-800-81 | s PHOTOINTERRUPTER TLP801A |

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

PD-44 BOARD

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|----------------|--------------------------|
| | △ A-6717-529-A | o COMPLETE PCB, PD-44 |
| C1 | 1-131-347-00 | s TANTALUM 1uF 10% 35V |
| C2 | 1-131-347-00 | s TANTALUM 1uF 10% 35V |
| C3 | 1-124-556-11 | s ELECT 2200uF 20% 16V |
| C4 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C5 | 1-131-347-00 | s TANTALUM 1uF 10% 35V |
| C6 | 1-131-347-00 | s TANTALUM 1uF 10% 35V |
| C7 | 1-124-556-11 | s ELECT 2200uF 20% 16V |
| C8 | 1-131-347-00 | s TANTALUM 1uF 10% 35V |
| C9 | 1-131-347-00 | s TANTALUM 1uF 10% 35V |
| C11 | 1-131-347-00 | s TANTALUM 1uF 10% 35V |
| C12 | 1-131-347-00 | s TANTALUM 1uF 10% 35V |
| C13 | 1-124-556-11 | s ELECT 2200uF 20% 16V |
| C14 | 1-131-356-00 | s TANTALUM 3.3uF 10% 25V |
| C15 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C16 | 1-131-347-00 | s TANTALUM 1uF 10% 35V |
| C17 | 1-131-347-00 | s TANTALUM 1uF 10% 35V |
| C18 | 1-131-347-00 | s TANTALUM 1uF 10% 35V |
| C19 | 1-131-347-00 | s TANTALUM 1uF 10% 35V |
| C20 | 1-161-494-00 | s CERAMIC 0.022uF 25V |
| C21 | 1-161-494-00 | s CERAMIC 0.022uF 25V |
| CN1 | 1-506-484-11 | s CONNECTOR, 5P, MALE |
| CN2 | 1-506-484-11 | s CONNECTOR, 5P, MALE |
| CN3 | 1-506-484-11 | s CONNECTOR, 5P, MALE |
| CN4 | 1-506-482-11 | s CONNECTOR, 3P, MALE |
| CN5 | 1-506-482-11 | s CONNECTOR, 3P, MALE |
| CN6 | 1-506-482-11 | s CONNECTOR, 3P, MALE |
| CN7 | 1-506-482-11 | s CONNECTOR, 3P, MALE |
| CN8 | 1-506-483-21 | o CONNECTOR, 4P, MALE |
| D1 | 8-719-911-19 | s DIODE 1SS119 |
| D2 | 8-719-911-19 | s DIODE 1SS119 |
| D3 | 8-719-908-06 | s DIODE ERA81-005 |
| D4 | 8-719-200-02 | s DIODE 10E2 |
| D5 | 8-719-160-69 | s DIODE RD18F-B3 |
| D6 | 8-719-911-19 | s DIODE 1SS119 |
| D7 | 8-719-911-19 | s DIODE 1SS119 |
| D8 | 8-719-908-06 | s DIODE ERA81-005 |
| D9 | 8-719-200-02 | s DIODE 10E2 |
| D10 | 8-719-160-69 | s DIODE RD18F-B3 |
| D11 | 8-719-911-19 | s DIODE 1SS119 |
| D12 | 8-719-911-19 | s DIODE 1SS119 |
| D13 | 8-719-200-02 | s DIODE 10E2 |
| D14 | 8-719-160-69 | s DIODE RD18F-B3 |
| D15 | 8-719-911-19 | s DIODE 1SS119 |
| D16 | 8-719-911-19 | s DIODE 1SS119 |
| D17 | 8-719-908-06 | s DIODE ERA81-005 |
| D18 | 8-719-200-02 | s DIODE 10E2 |
| D19 | 8-719-160-69 | s DIODE RD18F-B3 |
| D20 | 8-719-911-19 | s DIODE 1SS119 |
| D21 | 8-719-911-19 | s DIODE 1SS119 |
| D22 | 8-719-911-19 | s DIODE 1SS119 |
| D23 | 8-719-200-02 | s DIODE 10E2 |
| D24 | 8-719-160-69 | s DIODE RD18F-B3 |
| D25 | 8-719-911-19 | s DIODE 1SS119 |
| D26 | 8-719-911-19 | s DIODE 1SS119 |
| D27 | 8-719-200-02 | s DIODE 10E2 |
| D28 | 8-719-160-69 | s DIODE RD18F-B3 |

(PD-44 BOARD)

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|----------------|-----------------------|
| IC1 | 8-759-240-49 | s IC TC4049BP |
| IC2 | 8-759-904-25 | s IC SN74ALS05AN |
| IC3 | 8-759-904-25 | s IC SN74ALS05AN |
| PS4 | △ 1-532-686-00 | s LINK, IC 2.7A |
| PS5 | △ 1-532-686-00 | s LINK, IC 2.7A |
| Q1 | 8-729-900-89 | s TRANSISTOR DTC144ES |
| Q2 | 8-729-900-89 | s TRANSISTOR DTC144ES |
| Q3 | 8-729-900-65 | s TRANSISTOR DTA144ES |
| Q4 | 8-729-200-46 | s TRANSISTOR 2SD1160 |
| Q5 | 8-729-900-65 | s TRANSISTOR DTA144ES |
| Q6 | 8-729-200-46 | s TRANSISTOR 2SD1160 |
| Q7 | 8-729-900-89 | s TRANSISTOR DTC144ES |
| Q8 | 8-729-900-89 | s TRANSISTOR DTC144ES |
| Q9 | 8-729-900-65 | s TRANSISTOR DTA144ES |
| Q10 | 8-729-200-46 | s TRANSISTOR 2SD1160 |
| Q11 | 8-729-900-65 | s TRANSISTOR DTA144ES |
| Q12 | 8-729-200-46 | s TRANSISTOR 2SD1160 |
| Q13 | 8-729-900-65 | s TRANSISTOR DTA144ES |
| Q14 | 8-729-200-46 | s TRANSISTOR 2SD1160 |
| Q15 | 8-729-900-65 | s TRANSISTOR DTA144ES |
| Q16 | 8-729-200-46 | s TRANSISTOR 2SD1160 |
| Q17 | 8-729-900-89 | s TRANSISTOR DTC144ES |
| Q18 | 8-729-900-89 | s TRANSISTOR DTC144ES |
| Q19 | 8-729-900-65 | s TRANSISTOR DTA144ES |
| Q20 | 8-729-200-46 | s TRANSISTOR 2SD1160 |
| Q21 | 8-729-900-65 | s TRANSISTOR DTA144ES |
| Q22 | 8-729-200-46 | s TRANSISTOR 2SD1160 |
| Q23 | 8-729-173-38 | s TRANSISTOR 2SA733-K |
| Q24 | 8-729-900-65 | s TRANSISTOR DTA144ES |
| Q25 | 8-729-200-46 | s TRANSISTOR 2SD1160 |
| Q26 | 8-729-900-65 | s TRANSISTOR DTA144ES |
| Q27 | 8-729-200-46 | s TRANSISTOR 2SD1160 |
| Q28 | 8-729-900-65 | s TRANSISTOR DTA144ES |
| Q29 | 8-729-200-46 | s TRANSISTOR 2SD1160 |
| Q30 | 8-729-900-65 | s TRANSISTOR DTA144ES |
| Q31 | 8-729-200-46 | s TRANSISTOR 2SD1160 |
| Q32 | 8-729-900-65 | s TRANSISTOR DTA144ES |
| Q33 | 8-729-900-89 | s TRANSISTOR DTC144ES |

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

RP-38A BOARD

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|---------------------------------|
| | A-6727-053-A | o MOUNTED CIRCUIT BOARD, RP-38A |
| | 3-621-124-00 | s SPACER |
| C202 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C206 | 1-124-234-00 | s ELECT 22uF 20% 16V |
| C207 | 1-124-234-00 | s ELECT 22uF 20% 16V |
| C210 | 1-126-160-11 | s ELECT 1uF 20% 50V |
| C211 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C213 | 1-126-160-11 | s ELECT 1uF 20% 50V |
| C215 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| CN702 | 1-506-473-11 | o CONNECTOR, 8P, MALE |
| CN703 | 1-506-471-11 | o CONNECTOR, 6P, MALE |
| CN704 | 1-506-473-11 | s CONNECTOR, 8P, MALE |
| COP201 | 1-561-724-00 | o PLUG, SHORTING |
| COP202 | 1-561-724-00 | o PLUG, SHORTING |
| COR201 | 1-560-914-00 | s PIN, SHORTING |
| COR202 | 1-560-914-00 | s PIN, SHORTING |
| D201 | 8-719-911-19 | s DIODE 1SS119 |
| D202 | 8-719-100-03 | s DIODE 1S2835 |
| IC201 | 8-743-731-00 | s IC BX373A |
| IC202 | 8-743-740-00 | s IC BX374 |
| IC203 | 8-741-126-50 | s IC BX1265 |
| IC204 | 8-741-126-50 | s IC BX1265 |
| L201 | 1-410-482-31 | s INDUCTOR 100uH |
| L202 | 1-410-482-31 | s INDUCTOR 100uH |
| L204 | 1-410-482-31 | s INDUCTOR 100uH |
| L205 | 1-410-482-31 | s INDUCTOR 100uH |
| Q201 | 8-729-201-05 | s TRANSISTOR 2SC2878-B |
| Q202 | 8-729-201-05 | s TRANSISTOR 2SC2878-B |
| Q203 | 8-729-901-06 | s TRANSISTOR DTA144EK |
| Q204 | 8-729-901-06 | s TRANSISTOR DTA144EK |
| Q205 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q206 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| R202 | 1-215-416-00 | s METAL 620 1% 1/6W |
| R203 | 1-215-405-00 | s METAL 220 1% 1/6W |
| RV201 | 1-230-521-11 | s RES, ADJ, METAL 2.2K |
| RV202 | 1-230-521-11 | s RES, ADJ, METAL 2.2K |
| RV203 | 1-230-522-11 | s RES, ADJ, METAL 4.7K |
| RV204 | 1-230-522-11 | s RES, ADJ, METAL 4.7K |
| RV205 | 1-230-521-11 | s RES, ADJ, METAL 2.2K |
| RV206 | 1-230-521-11 | s RES, ADJ, METAL 2.2K |
| T201 | 1-426-017-00 | s TRANSFORMER, AF |
| T202 | 1-426-172-11 | s TRANSFORMER, HF |
| T203 | 1-426-172-11 | s TRANSFORMER, HF |
| T204 | 1-426-319-11 | s TRANSFORMER, PB RF |
| T205 | 1-426-320-11 | s TRANSFORMER, PB RF |

SE-99 BOARD

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|--------------------------------|
| | 1-629-238-11 | o PRINTED CIRCUIT BOARD, SE-99 |
| D1 | 8-719-118-33 | s PHOTODIODE PH302D |

SE-118 BOARD

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|---------------------------------|
| | 1-629-239-11 | o PRINTED CIRCUIT BOARD, SE-118 |
| D1 | 8-719-118-33 | s PHOTODIODE PH302D |

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

SV-108A BOARD

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|----------------|-----------------------------------|
| | △ A-6715-421-B | o MOUNTED CIRCUIT BOARD, SV-108A |
| | 3-621-124-00 | s SPACER |
| C1 | 1-130-487-00 | s MYLAR 0.022uF 5% 50V |
| C2 | 1-124-465-00 | s ELECT 0.47uF 20% 50V |
| C3 | 1-130-487-00 | s MYLAR 0.022uF 5% 50V |
| C4 | 1-124-465-00 | s ELECT 0.47uF 20% 50V |
| C5 | 1-130-487-00 | s MYLAR 0.022uF 5% 50V |
| C6 | 1-124-465-00 | s ELECT 0.47uF 20% 50V |
| C7 | 1-124-257-00 | s ELECT 2.2uF 20% 50V |
| C8 | 1-130-481-00 | s MYLAR 0.0068uF 5% 50V |
| C10 | 1-124-261-00 | s ELECT 10uF 20% 50V |
| C11 | 1-130-485-00 | s MYLAR 0.015uF 5% 50V |
| C12 | 1-124-472-11 | s ELECT 470uF 20% 10V |
| C13 | 1-124-225-00 | s ELECT 100uF 20% 6.3V |
| C14 | 1-124-225-00 | s ELECT 100uF 20% 6.3V |
| C15 | 1-124-225-00 | s ELECT 100uF 20% 6.3V |
| C16 | 1-130-483-00 | s MYLAR 0.01uF 5% 50V |
| C17 | 1-130-483-00 | s MYLAR 0.01uF 5% 50V |
| C18 | 1-131-341-00 | s TANTALUM 0.1uF 10% 35V |
| C21 | 1-163-015-00 | s CERAMIC, CHIP 0.0033uF 5% 50V |
| C22 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C24 | 1-124-248-00 | s ELECT 22uF 20% 35V |
| C25 | 1-124-465-00 | s ELECT 0.47uF 20% 50V |
| C27 | 1-124-261-00 | s ELECT 10uF 20% 50V |
| C28 | 1-124-261-00 | s ELECT 10uF 20% 50V |
| C29 | 1-126-160-11 | s ELECT 1uF 20% 50V |
| C30 | 1-124-261-00 | s ELECT 10uF 20% 50V |
| C31 | 1-126-160-11 | s ELECT 1uF 20% 50V |
| C33 | 1-126-160-11 | s ELECT 1uF 20% 50V |
| C35 | 1-131-343-00 | s TANTALUM 0.22uF 10% 35V |
| C36 | 1-162-798-11 | s CERAMIC 0.022uF 10% 50V |
| C37 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C39 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C42 | 1-124-261-00 | s ELECT 10uF 20% 50V |
| C46 | 1-124-261-00 | s ELECT 10uF 20% 50V |
| C48 | 1-164-161-11 | s CERAMIC, CHIP 0.0022uF 10% 100V |
| C49 | 1-163-023-00 | s CERAMIC, CHIP 0.015uF 5% 50V |
| C50 | 1-124-261-00 | s ELECT 10uF 20% 50V |
| C51 | 1-124-261-00 | s ELECT 10uF 20% 50V |
| C63 | 1-126-160-11 | s ELECT 1uF 20% 50V |
| C64 | 1-126-160-11 | s ELECT 1uF 20% 50V |
| C68 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C73 | 1-130-496-00 | s MYLAR 0.12uF 5% 50V |
| C74 | 1-130-490-11 | s MYLAR 0.039uF 5% 50V |
| C75 | 1-130-491-00 | s MYLAR 0.047uF 5% 50V |
| C77 | 1-163-037-11 | s CERAMIC, CHIP 0.022uF 10% 25V |
| C78 | 1-130-484-00 | s MYLAR 0.012uF 5% 50V |
| C79 | 1-126-160-11 | s ELECT 1uF 20% 50V |
| C80 | 1-126-163-11 | s ELECT 4.7uF 20% 50V |
| C81 | 1-164-161-11 | s CERAMIC, CHIP 0.0022uF 10% 100V |
| C82 | 1-130-486-00 | s MYLAR 0.018uF 10% 50V |
| C84 | 1-130-486-00 | s MYLAR 0.018uF 10% 50V |
| C87 | 1-124-120-11 | s ELECT 220uF 20% 25V |
| C90 | 1-124-120-11 | s ELECT 220uF 20% 25V |
| C91 | 1-124-120-11 | s ELECT 220uF 20% 25V |
| C92 | 1-163-037-11 | s CERAMIC, CHIP 0.022uF 10% 25V |
| C93 | 1-124-261-00 | s ELECT 10uF 20% 50V |
| C95 | 1-124-261-00 | s ELECT 10uF 20% 50V |

(SV-108A BOARD)

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|-----------------------------------|
| C97 | 1-124-261-00 | s ELECT 10uF 20% 50V |
| C98 | 1-124-910-11 | s ELECT 47uF 20% 50V |
| C99 | 1-124-910-11 | s ELECT 47uF 20% 50V |
| C102 | 1-130-491-00 | s MYLAR 0.047uF 5% 50V |
| C103 | 1-130-492-11 | s MYLAR 0.056uF 5% 50V |
| C104 | 1-164-161-11 | s CERAMIC, CHIP 0.0022uF 10% 100V |
| C105 | 1-124-463-00 | s ELECT 0.1uF 20% 50V |
| C109 | 1-124-120-11 | s ELECT 220uF 20% 25V |
| C111 | 1-124-261-00 | s ELECT 10uF 20% 50V |
| C112 | 1-124-257-00 | s ELECT 2.2uF 20% 50V |
| C113 | 1-130-477-00 | s MYLAR 0.0033uF 5% 50V |
| C114 | 1-124-257-00 | s ELECT 2.2uF 20% 50V |
| C115 | 1-163-037-11 | s CERAMIC, CHIP 0.022uF 10% 25V |
| C116 | 1-124-248-00 | s ELECT 22uF 20% 35V |
| C119 | 1-130-479-00 | s MYLAR 0.0047uF 5% 50V |
| C120 | 1-124-465-00 | s ELECT 0.47uF 20% 50V |
| C121 | 1-124-465-00 | s ELECT 0.47uF 20% 50V |
| C122 | 1-163-037-11 | s CERAMIC, CHIP 0.022uF 10% 25V |
| C123 | 1-124-248-00 | s ELECT 22uF 20% 35V |
| C125 | 1-124-120-11 | s ELECT 220uF 20% 25V |
| C149 | 1-126-103-11 | s ELECT 470uF 20% 16V |
| CN201 | 1-563-234-11 | o CONNECTOR, FPC 23P, MALE |
| CN202 | 1-563-234-11 | o CONNECTOR, FPC 23P, MALE |
| CN204 | 1-506-473-11 | s CONNECTOR, 8P, MALE |
| CN205 | 1-506-468-11 | s CONNECTOR, 3P, MALE |
| CN206 | 1-506-471-11 | s CONNECTOR, 6P, MALE |
| CN207 | 1-506-468-11 | s CONNECTOR, 3P, MALE |
| CN208 | 1-506-473-11 | s CONNECTOR, 8P, MALE |
| CN209 | 1-506-468-11 | s CONNECTOR, 3P, MALE |
| CN210 | 1-506-468-11 | s CONNECTOR, 3P, MALE |
| CN211 | 1-506-468-11 | s CONNECTOR, 3P, MALE |
| D1 | 8-719-911-19 | s DIODE 1SS119 |
| D2 | 8-719-100-05 | s DIODE 1S2837 |
| D3 | 8-719-911-19 | s DIODE 1SS119 |
| D4 | 8-719-109-89 | s DIODE RD5.6ES-B2 |
| D5 | 8-719-911-19 | s DIODE 1SS119 |
| D6 | 8-719-911-19 | s DIODE 1SS119 |
| D7 | 8-719-101-76 | s DIODE RD10EL-2 |
| D8 | 8-719-100-05 | s DIODE 1S2837 |
| D9 | 8-719-100-03 | s DIODE 1S2835 |
| D10 | 8-719-911-19 | s DIODE 1SS119 |
| D11 | 8-719-911-19 | s DIODE 1SS119 |
| D12 | 8-719-100-03 | s DIODE 1S2835 |
| D13 | 8-719-911-19 | s DIODE 1SS119 |
| D14 | 8-719-100-03 | s DIODE 1S2835 |
| D15 | 8-719-800-76 | s DIODE 1SS226 |
| D16 | 8-719-800-76 | s DIODE 1SS226 |
| D17 | 8-719-800-76 | s DIODE 1SS226 |
| D18 | 8-719-100-03 | s DIODE 1S2835 |
| D19 | 8-719-911-19 | s DIODE 1SS119 |
| D20 | 8-719-100-05 | s DIODE 1S2837 |
| D21 | 8-719-100-05 | s DIODE 1S2837 |
| D22 | 8-719-800-76 | s DIODE 1SS226 |
| D23 | 8-719-800-76 | s DIODE 1SS226 |
| D24 | 8-719-800-76 | s DIODE 1SS226 |
| D25 | 8-719-800-76 | s DIODE 1SS226 |
| D26 | 8-719-982-04 | s DIODE ERB81-004 |
| D27 | 8-719-100-05 | s DIODE 1S2837 |

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

(SV-108A BOARD)

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|----------------|-----------------------|
| D28 | 8-719-911-19 | s DIODE 1SS119 |
| D29 | 8-719-911-19 | s DIODE 1SS119 |
| D30 | 8-719-800-76 | s DIODE 1SS226 |
| D31 | 8-719-100-05 | s DIODE 1S2837 |
| D32 | 8-719-110-13 | s DIODE RD9.1ES-B2 |
| D33 | 8-719-110-13 | s DIODE RD9.1ES-B2 |
| D34 | 8-719-982-04 | s DIODE ERB81-004 |
| D35 | 8-719-100-05 | s DIODE 1S2837 |
| D36 | 8-719-100-05 | s DIODE 1S2837 |
| D37 | 8-719-100-05 | s DIODE 1S2837 |
| D38 | 8-719-100-05 | s DIODE 1S2837 |
| D39 | 8-719-982-04 | s DIODE ERB81-004 |
| D40 | 8-719-911-19 | s DIODE 1SS119 |
| IC1 | 8-751-941-05 | s IC CX194B-5 |
| IC2 | 8-743-915-10 | s IC BX3915A |
| IC3 | 8-759-200-68 | s IC TC4011BF |
| IC4 | 8-759-200-90 | s IC TC4538BF |
| IC5 | 8-759-200-68 | s IC TC4011BF |
| IC6 | 8-759-200-68 | s IC TC4011BF |
| IC7 | 8-759-200-82 | s IC TC4069UBF |
| IC8 | 8-759-200-80 | s IC TC4050BF |
| IC9 | 8-759-200-90 | s IC TC4538BF |
| IC10 | 8-759-200-90 | s IC TC4538BF |
| IC11 | 8-759-200-90 | s IC TC4538BF |
| IC12 | 8-759-200-82 | s IC TC4069UBF |
| IC13 | 8-759-100-95 | s IC UPC324G2 |
| IC14 | 8-759-100-95 | s IC UPC324G2 |
| IC15 | 8-759-100-95 | s IC UPC324G2 |
| IC16 | 8-759-100-93 | s IC UPC393G2 |
| IC17 | 8-759-200-82 | s IC TC4069UBF |
| IC18 | 8-759-200-67 | s IC TC4001BF |
| IC19 | 8-759-100-93 | s IC UPC393G2 |
| IC20 | 8-759-100-93 | s IC UPC393G2 |
| IC21 | 8-759-207-74 | s IC TC4030BFHB |
| IC22 | 8-759-208-11 | s IC TC4053BFHB |
| IC23 | 8-759-208-11 | s IC TC4053BFHB |
| IC24 | 8-759-208-11 | s IC TC4053BFHB |
| IC25 | 8-759-205-78 | s IC TC504013BF |
| IC26 | 8-759-100-93 | s IC UPC393G2 |
| IC27 | 8-759-208-11 | s IC TC4053BFHB |
| IC28 | 8-759-100-96 | s IC UPC4558G2 |
| IC29 | 8-759-100-95 | s IC UPC324G2 |
| IC30 | 8-759-208-11 | s IC TC4053BFHB |
| IC31 | 8-759-910-70 | s IC MB3763PS |
| IC32 | 8-759-603-27 | s IC M5201FP |
| L1 | 1-459-155-00 | s COIL 45uH |
| L2 | 1-408-298-21 | s COIL, CHOKE 2mH |
| L3 | 1-408-298-21 | s COIL, CHOKE 2mH |
| L4 | 1-408-298-21 | s COIL, CHOKE 2mH |
| PS1 | △ 1-532-637-00 | s LINK, IC 1.0A |
| PS2 | △ 1-532-675-00 | s LINK, IC 1.5A |
| PS3 | △ 1-532-686-00 | s LINK, IC 2.7A |
| Q1 | 8-729-901-06 | s TRANSISTOR DTA144EK |
| Q2 | 8-729-901-06 | s TRANSISTOR DTA144EK |
| Q3 | 8-729-100-66 | s TRANSISTOR 2SC1623 |
| Q5 | 8-729-100-66 | s TRANSISTOR 2SC1623 |
| Q6 | 8-729-216-22 | s TRANSISTOR 2SA1162 |

(SV-108A BOARD)

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|------------------------------|
| Q7 | 8-729-100-66 | s TRANSISTOR 2SC1623 |
| Q8 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q9 | 8-729-175-72 | s TRANSISTOR 2SC2757-T33 |
| Q10 | 8-729-100-66 | s TRANSISTOR 2SC1623 |
| Q11 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q12 | 8-729-901-06 | s TRANSISTOR DTA144EK |
| Q13 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q14 | 8-729-100-66 | s TRANSISTOR 2SC1623 |
| Q15 | 8-729-100-66 | s TRANSISTOR 2SC1623 |
| Q16 | 8-729-100-66 | s TRANSISTOR 2SC1623 |
| Q17 | 8-729-100-66 | s TRANSISTOR 2SC1623 |
| Q18 | 8-729-100-66 | s TRANSISTOR 2SC1623 |
| Q19 | 8-729-100-66 | s TRANSISTOR 2SC1623 |
| Q20 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q21 | 8-729-100-66 | s TRANSISTOR 2SC1623 |
| Q22 | 8-729-600-33 | s TRANSISTOR 2SC403SP-5 |
| Q23 | 8-729-100-66 | s TRANSISTOR 2SC1623 |
| Q24 | 8-729-901-06 | s TRANSISTOR DTA144EK |
| Q25 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q26 | 8-729-400-67 | s TRANSISTOR 2SD1030RTX |
| Q27 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q28 | 8-729-901-06 | s TRANSISTOR DTA144EK |
| Q29 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q30 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q31 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q32 | 8-729-201-54 | s TRANSISTOR 2SC2562-O |
| Q33 | 8-729-206-55 | s TRANSISTOR 2SC3072-B |
| Q34 | 8-729-100-66 | s TRANSISTOR 2SC1623 |
| Q35 | 8-729-100-66 | s TRANSISTOR 2SC1623 |
| Q36 | 8-729-100-66 | s TRANSISTOR 2SC1623 |
| Q37 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q38 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q39 | 8-729-901-06 | s TRANSISTOR DTA144EK |
| Q40 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q41 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q42 | 8-729-200-46 | s TRANSISTOR 2SD1160 |
| Q43 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q44 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q45 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q46 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q47 | 8-729-901-06 | s TRANSISTOR DTA144EK |
| Q48 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q49 | 8-729-901-06 | s TRANSISTOR DTA144EK |
| Q50 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q51 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q52 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q53 | 8-729-206-55 | s TRANSISTOR 2SC3072-B |
| Q54 | 8-729-201-54 | s TRANSISTOR 2SC2562-O |
| R143 | 1-216-748-11 | s METAL, CHIP 39K 1% 1/10W |
| R148 | 1-216-692-11 | s METAL, CHIP 51K 0.5% 1/10W |
| R151 | 1-215-485-00 | s METAL 470K 1% 1/6W |
| R153 | 1-216-748-11 | s METAL, CHIP 39K 1% 1/10W |
| R185 | 1-216-691-11 | s METAL, CHIP 47K 0.5% 1/10W |
| R186 | 1-216-691-11 | s METAL, CHIP 47K 0.5% 1/10W |
| R196 | 1-216-031-00 | s METAL, CHIP 180 5% 1/10W |
| R202 | 1-216-748-11 | s METAL, CHIP 39K 1% 1/10W |
| R214 | 1-216-748-11 | s METAL, CHIP 39K 1% 1/10W |
| R229 | 1-216-103-00 | s METAL, CHIP 180K 5% 1/10W |
| R248 | 1-216-748-11 | s METAL, CHIP 39K 1% 1/10W |

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

(SV-108A BOARD)

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|---------------------------|
| R272 | 1-207-616-00 | s WIREWOUND 0.47 10% 3W F |
| RV2 | 1-230-526-11 | s RES, ADJ, METAL 47K |
| RV3 | 1-230-526-11 | s RES, ADJ, METAL 47K |
| RV4 | 1-230-527-11 | s RES, ADJ, METAL 100K |
| RV5 | 1-230-526-11 | s RES, ADJ, METAL 47K |
| RV6 | 1-230-527-11 | s RES, ADJ, METAL 100K |
| RV7 | 1-230-527-11 | s RES, ADJ, METAL 100K |
| RV8 | 1-230-527-11 | s RES, ADJ, METAL 100K |
| RV9 | 1-230-528-11 | s RES, ADJ, METAL 220K |
| RV10 | 1-230-526-11 | s RES, ADJ, METAL 47K |
| RV11 | 1-230-528-11 | s RES, ADJ, METAL 220K |
| RV12 | 1-230-522-11 | s RES, ADJ, METAL 4.7K |
| RV13 | 1-230-520-11 | s RES, ADJ, METAL 1K |
| RV14 | 1-230-526-11 | s RES, ADJ, METAL 47K |
| RV15 | 1-230-523-11 | s RES, ADJ, METAL 10K |
| RV16 | 1-230-528-11 | s RES, ADJ, METAL 220K |
| X1 | 1-567-860-11 | s CRYSTAL, 4.433618MHZ |

SW-296 BOARD

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|----------|----------------|
|---------------------|----------|----------------|

All of the component parts on this board are supplied together when you order the VA-76 board.

| | | |
|-----|--------------|---------------------------------|
| | 1-629-246-12 | o PRINTED CIRCUIT BOARD, SW-296 |
| C1 | 1-124-638-11 | s ELECT 22uF 20% 10V |
| C2 | 1-124-638-11 | s ELECT 22uF 20% 10V |
| C3 | 1-161-379-00 | s CERAMIC 0.01uF 20% 25V |
| CN1 | 1-569-710-11 | o PIN, B-B 10P |
| CN2 | 1-569-710-11 | o PIN, B-B 10P |
| D1 | 8-719-109-85 | s DIODE RD5.1ES-B2 |
| IC1 | 8-759-700-39 | s IC NJM4562S-D |
| R1 | 1-249-437-11 | s CARBON 47K 5% 1/4W |
| R2 | 1-249-437-11 | s CARBON 47K 5% 1/4W |
| R3 | 1-249-419-11 | s CARBON 1.5K 5% 1/4W |
| S1 | 1-570-844-11 | s SWITCH, SLIDE |
| S2 | 1-570-844-11 | s SWITCH, SLIDE |
| S3 | 1-570-835-11 | s SWITCH, SLIDE |

SY-131A BOARD

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|-----------------------------------|
| | A-6717-530-A | o MOUNTED CIRCUIT BOARD, SY-131A |
| C2 | 1-163-037-11 | s CERAMIC, CHIP 0.022uF 10% 25V |
| C3 | 1-126-154-11 | s ELECT 47uF 20% 6.3V |
| C4 | 1-164-161-11 | s CERAMIC, CHIP 0.0022uF 10% 100V |
| C5 | 1-126-154-11 | s ELECT 47uF 20% 6.3V |
| C6 | 1-164-161-11 | s CERAMIC, CHIP 0.0022uF 10% 100V |
| C9 | 1-126-154-11 | s ELECT 47uF 20% 6.3V |
| C10 | 1-131-343-00 | s TANTALUM 0.22uF 10% 35V |
| C14 | 1-124-261-00 | s ELECT 10uF 20% 50V |
| C15 | 1-124-465-00 | s ELECT 0.47uF 20% 50V |
| C16 | 1-131-348-00 | s TANTALUM 1.5uF 10% 35V |
| C20 | 1-124-465-00 | s ELECT 0.47uF 20% 50V |
| C21 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C22 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C25 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C28 | 1-164-161-11 | s CERAMIC, CHIP 0.0022uF 10% 100V |
| C30 | 1-164-161-11 | s CERAMIC, CHIP 0.0022uF 10% 100V |
| C32 | 1-164-161-11 | s CERAMIC, CHIP 0.0022uF 10% 100V |
| C34 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C38 | 1-126-094-11 | s ELECT 4.7uF 20% 35V |
| C40 | 1-131-343-00 | s TANTALUM 0.22uF 10% 35V |
| C62 | 1-126-162-11 | s ELECT 3.3uF 20% 50V |
| C68 | 1-131-345-00 | s TANTALUM 0.47uF 10% 35V |
| C201 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C202 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C203 | 1-125-443-11 | s DOUBLE LAYERS 0.047F 5.5V |
| C204 | 1-124-261-00 | s ELECT 10uF 20% 50V |
| C205 | 1-124-261-00 | s ELECT 10uF 20% 50V |
| C206 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C209 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C210 | 1-124-584-00 | s ELECT 100uF 20% 10V |
| C211 | 1-124-584-00 | s ELECT 100uF 20% 10V |
| C212 | 1-126-153-11 | s ELECT 22uF 20% 6.3V |
| C213 | 1-163-988-11 | s CERAMIC CHIP 180PF 5% 100V |
| C214 | 1-163-988-11 | s CERAMIC CHIP 180PF 5% 100V |
| C215 | 1-109-620-00 | s MICA 200PF 5% 500V |
| C216 | 1-109-687-00 | s MICA 390PF 5% 500V |
| C217 | 1-109-692-00 | s MICA 620PF 5% 500V |
| C218 | 1-124-229-00 | s ELECT 33uF 20% 10V |
| C219 | 1-124-229-00 | s ELECT 33uF 20% 10V |
| C220 | 1-163-037-11 | s CERAMIC, CHIP 0.022uF 10% 25V |
| C223 | 1-124-225-00 | s ELECT 100uF 20% 6.3V |
| C224 | 1-163-833-00 | s CERAMIC, CHIP 0.068uF 25V |
| C225 | 1-124-261-00 | s ELECT 10uF 20% 50V |
| C228 | 1-109-626-00 | s MICA 100PF 5% 500V |
| CN101 | 1-563-234-11 | o CONNECTOR, FPC 23P, MALE |
| CN102 | 1-563-234-11 | o CONNECTOR, FPC 23P, MALE |
| CN103 | 1-563-017-11 | o CONNECTOR, FPC 30P, MALE |
| CN104 | 1-506-491-11 | o CONNECTOR, 12P, MALE |
| CN105 | 1-562-717-11 | o CONNECTOR, 34P, MALE |
| CN106 | 1-562-717-11 | o CONNECTOR, 34P, MALE |
| CN111 | 1-506-477-11 | s CONNECTOR, 12P, MALE |
| CN112 | 1-506-477-11 | s CONNECTOR, 12P, MALE |
| CN113 | 1-506-468-11 | s CONNECTOR, 3P, MALE |
| CN114 | 1-506-468-11 | s CONNECTOR, 3P, MALE |
| CN115 | 1-506-468-11 | s CONNECTOR, 3P, MALE |
| CN116 | 1-506-469-11 | o CONNECTOR, 4P, MALE |

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

(SY-131A BOARD)

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|--------------------------|
| CP201 | 1-466-071-11 | s OSCILLATION UNIT, BIAS |
| CV201 | 1-141-393-11 | s CAP, TRIMMER 100PF |
| D1 | 8-719-109-88 | s DIODE RD5.6ES-B1 |
| D2 | 8-719-100-03 | s DIODE 1S2835 |
| D3 | 8-719-100-05 | s DIODE 1S2837 |
| D4 | 8-719-100-03 | s DIODE 1S2835 |
| D5 | 8-719-100-03 | s DIODE 1S2835 |
| D6 | 8-719-911-19 | s DIODE 1SS119 |
| D7 | 8-719-109-88 | s DIODE RD5.6ES-B1 |
| D8 | 8-719-400-18 | s DIODE MA152WK |
| D201 | 8-719-200-02 | s DIODE 10E2 |
| D202 | 8-719-100-05 | s DIODE 1S2837 |
| D203 | 8-719-105-52 | s DIODE RD3.6M-B2 |
| IC1 | 8-759-982-XX | s IC MB88551H-311M |
| IC2 | 8-759-983-01 | s IC MB88551H-312M |
| IC3 | 8-759-983-00 | s IC MB88505H-1019M |
| IC4 | 8-759-605-86 | s IC CXA1261M |
| IC5 | 8-759-100-93 | s IC UPC393G2 |
| IC6 | 8-759-605-86 | s IC CXA1261M |
| IC7 | 8-759-100-93 | s IC UPC393G2 |
| IC8 | 8-759-100-93 | s IC UPC393G2 |
| IC9 | 8-759-925-73 | s IC SN74HC03NS |
| IC10 | 8-759-100-93 | s IC UPC393G2 |
| IC11 | 8-759-200-82 | s IC TC4069UBF |
| IC12 | 8-759-200-72 | s IC TC4019BF |
| IC13 | 8-759-200-90 | s IC TC4538BF |
| IC14 | 8-759-200-67 | s IC TC4001BF |
| IC15 | 8-759-926-95 | s IC SN74HC4020NS |
| IC16 | 8-759-200-84 | s IC TC4081BF |
| IC17 | 8-759-200-84 | s IC TC4081BF |
| IC18 | 8-759-207-74 | s IC TC4030BFHB |
| IC19 | 8-759-208-11 | s IC TC4053BFHB |
| IC20 | 8-759-200-90 | s IC TC4538BF |
| IC21 | 8-759-100-94 | s IC UPC358G2 |
| IC201 | 8-759-982-05 | s IC RC7805FA |
| IC202 | 8-759-208-11 | s IC TC4053BFHB |
| IC203 | 8-759-700-09 | s IC NJM2043M-D |
| L201 | 1-410-667-31 | s INDUCTOR 22uH |
| L202 | 1-410-482-31 | s INDUCTOR 100uH |
| LV201 | 1-407-285-00 | s INDUCTOR, VAR 1.5mH |
| Q1 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q2 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q3 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q4 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q5 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q6 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q7 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q8 | 8-729-901-06 | s TRANSISTOR DTA144EK |
| Q9 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q10 | 8-729-901-06 | s TRANSISTOR DTA144EK |
| Q11 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q12 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q13 | 8-729-901-06 | s TRANSISTOR DTA144EK |
| Q14 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q15 | 8-729-901-06 | s TRANSISTOR DTA144EK |
| Q16 | 8-729-901-06 | s TRANSISTOR DTA144EK |

(SY-131A BOARD),

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|-------------------------------|
| Q17 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q18 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q19 | 8-729-901-06 | s TRANSISTOR DTA144EK |
| Q20 | 8-729-901-06 | s TRANSISTOR DTA144EK |
| Q21 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q22 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q23 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q24 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q25 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q26 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q27 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q28 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q29 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q30 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q31 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q32 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q33 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q201 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q202 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q203 | 8-729-901-06 | s TRANSISTOR DTA144EK |
| Q204 | 8-729-102-93 | s TRANSISTOR 2SD596DV4 |
| Q205 | 8-729-901-06 | s TRANSISTOR DTA144EK |
| Q206 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q207 | 8-729-901-06 | s TRANSISTOR DTA144EK |
| Q208 | 8-729-202-38 | s TRANSISTOR 2SC3326N |
| Q209 | 8-729-901-06 | s TRANSISTOR DTA144EK |
| R40 | 1-216-682-11 | s METAL, CHIP 20K 0.5% 1/10W |
| R41 | 1-216-672-11 | s METAL, CHIP 7.5K 0.5% 1/10W |
| R42 | 1-216-673-11 | s METAL, CHIP 8.2K 0.5% 1/10W |
| R43 | 1-216-679-11 | s METAL, CHIP 15K 0.5% 1/10W |
| R45 | 1-215-487-00 | s METAL 560K 1% 1/6W |
| R50 | 1-216-699-11 | s METAL, CHIP 100K 0.5% 1/10W |
| R51 | 1-216-682-11 | s METAL, CHIP 20K 0.5% 1/10W |
| R52 | 1-216-686-11 | s METAL, CHIP 30K 0.5% 1/10W |
| R74 | 1-216-119-00 | s METAL, CHIP 820K 5% 1/10W |
| R82 | 1-216-665-11 | s METAL, CHIP 3.9K 0.5% 1/10W |
| R184 | 1-247-887-00 | s CARBON 100K 5% 1/4W |
| R201 | 1-247-736-11 | s CARBON 56 5% 1/2W |
| R224 | 1-215-484-00 | s METAL 430K 1% 1/6W |
| R225 | 1-216-648-11 | s METAL, CHIP 750 0.5% 1/10W |
| R227 | 1-216-019-00 | s METAL, CHIP 56 5% 1/10W |
| RB1 | 1-231-387-00 | s COMPOSITION CIRCUIT BLOCK |
| RV1 | 1-230-522-11 | s RES, ADJ, METAL 4.7K |
| RV201 | 1-230-528-11 | s RES, ADJ, METAL 220K |
| RV202 | 1-230-528-11 | s RES, ADJ, METAL 220K |
| RV204 | 1-230-523-11 | s RES, ADJ, METAL 10K |
| RV205 | 1-230-528-11 | s RES, ADJ, METAL 220K |
| RY201 | 1-515-614-11 | s RELAY |
| S1 | 1-553-977-00 | s SWITCH, SLIDE |
| X1 | 1-567-132-00 | s RESONATOR, CERAMIC 8.00MHz |
| X2 | 1-567-962-11 | s CRYSTAL 8MHz |

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

TR-54 BOARD

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|--------------------------------|
| | 1-629-250-11 | o PRINTED CIRCUIT BOARD, TR-54 |
| Q1 | 8-729-205-32 | s TRANSISTOR 2SB553-Y |

VA-76 BOARD

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--|----------------|
| | This board includes the DUS-262, HP-45, SW-296 boards. | |

| | | |
|------|----------------|--------------------------------|
| | △ A-6727-051-A | o MOUNTED CIRCUIT BOARD, VA-76 |
| | 1-237-701-11 | s RES, VAR CARBON 5K |
| | 1-533-189-11 | o HOLDER, FUSE |
| | 1-553-245-00 | s SWITCH, TOGGLE |
| | 3-621-124-00 | s SPACER |
| | 3-731-643-01 | o CHASSIS, VF |
| | 3-731-666-01 | o SPACER, V |
| C1 | 1-124-584-00 | s ELECT 100uF 20% 10V |
| C3 | 1-124-584-00 | s ELECT 100uF 20% 10V |
| C10 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C11 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C12 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C13 | 1-124-229-00 | s ELECT 33uF 20% 10V |
| C14 | 1-163-081-00 | s CERAMIC, CHIP 0.22uF 25V |
| C16 | 1-109-633-00 | s DIP MICA 470PF 2% 500V |
| C17 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C20 | 1-107-045-00 | s MICA 3.9PF 500V |
| C21 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C23 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C30 | 1-130-475-00 | s MYLAR 0.0022uF 5% 50V |
| C35 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C42 | 1-162-728-11 | s CERAMIC 560PF 1% 50V |
| C44 | 1-109-541-00 | s MICA 200PF 5% 100V |
| C48 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C49 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C50 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C51 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C52 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C54 | 1-109-633-00 | s DIP MICA 470PF 2% 500V |
| C57 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C59 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C63 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C66 | 1-126-101-11 | s ELECT 100uF 20% 16V |
| C68 | 1-126-101-11 | s ELECT 100uF 20% 16V |
| C71 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C73 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C75 | 1-130-475-00 | s MYLAR 0.0022uF 5% 50V |
| C78 | 1-109-539-00 | s MICA 150PF 5% 100V |
| C83 | 1-107-042-00 | s MICA 2.2PF 500V |
| C91 | 1-109-633-00 | s DIP MICA 470PF 2% 500V |
| C92 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C95 | 1-107-084-00 | s MICA 91PF 5% 50V |
| C96 | 1-107-090-00 | s MICA 160PF 5% 50V |
| C98 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C99 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C101 | 1-126-176-11 | s ELECT 220uF 20% 10V |
| C105 | 1-124-225-00 | s ELECT 100uF 20% 6.3V |
| C110 | 1-131-377-00 | s TANTALUM 10uF 10% 10V |
| C111 | 1-107-159-00 | s MICA 33PF 5% 500V |
| C112 | 1-107-159-00 | s MICA 33PF 5% 500V |
| C113 | 1-107-159-00 | s MICA 33PF 5% 500V |
| C114 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C115 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C117 | 1-107-159-00 | s MICA 33PF 5% 500V |
| C121 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C123 | 1-126-160-11 | s ELECT 1uF 20% 50V |
| C124 | 1-126-160-11 | s ELECT 1uF 20% 50V |

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

(VA-76 BOARD)

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|-----------------------------------|
| C125 | 1-126-160-11 | s ELECT 1uF 20% 50V |
| C126 | 1-107-209-00 | s MICA 20PF 5% 500V |
| C127 | 1-126-160-11 | s ELECT 1uF 20% 50V |
| C131 | 1-107-167-00 | s MICA 75PF 5% 50V |
| C133 | 1-126-160-11 | s ELECT 1uF 20% 50V |
| C134 | 1-109-543-00 | s DIP MICA 240PF 10% 100V |
| C135 | 1-107-084-00 | s MICA 91PF 5% 50V |
| C136 | 1-124-257-00 | s ELECT 2.2uF 20% 50V |
| C137 | 1-130-478-00 | s MYLAR 0.0039uF 5% 50V |
| C144 | 1-126-094-11 | s ELECT 4.7uF 20% 35V |
| C146 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C148 | 1-126-160-11 | s ELECT 1uF 20% 50V |
| C151 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C154 | 1-124-584-00 | s ELECT 100uF 20% 10V |
| C155 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C156 | 1-163-081-00 | s CERAMIC, CHIP 0.22uF 25V |
| C157 | 1-126-160-11 | s ELECT 1uF 20% 50V |
| C161 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C165 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C166 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C169 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C170 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C171 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C173 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C174 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C176 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C179 | 1-124-584-00 | s ELECT 100uF 20% 10V |
| C182 | 1-107-206-00 | s MICA 15PF 5% 500V |
| C183 | 1-107-077-00 | s MICA 47PF 5% 50V |
| C184 | 1-107-202-00 | s MICA 10PF 5% 500V |
| C202 | 1-124-225-00 | s ELECT 100uF 20% 6.3V |
| C204 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C205 | 1-126-160-11 | s ELECT 1uF 20% 50V |
| C209 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C211 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C212 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C214 | 1-107-207-00 | s MICA 16PF 5% 500V |
| C217 | 1-162-722-11 | s CERAMIC 330PF 1% 50V |
| C219 | 1-124-584-00 | s ELECT 100uF 20% 10V |
| C220 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C221 | 1-164-161-11 | s CERAMIC, CHIP 0.0022uF 10% 100V |
| C224 | 1-163-016-00 | s CERAMIC CHIP 0.0039uF 10% 50V |
| C227 | 1-124-584-00 | s ELECT 100uF 20% 10V |
| C302 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C304 | 1-126-101-11 | s ELECT 100uF 20% 16V |
| C306 | 1-126-101-11 | s ELECT 100uF 20% 16V |
| C308 | 1-126-103-11 | s ELECT 470uF 20% 16V |
| C310 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C321 | 1-124-584-00 | s ELECT 100uF 20% 10V |
| C324 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C325 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C326 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C328 | 1-126-096-11 | s ELECT 10uF 20% 35V |
| C329 | 1-124-119-00 | s ELECT 330uF 20% 16V |
| C330 | 1-126-101-11 | s ELECT 100uF 20% 16V |
| C341 | 1-126-154-11 | s ELECT 47uF 20% 6.3V |
| C342 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C343 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C344 | 1-124-584-00 | s ELECT 100uF 20% 10V |
| C347 | 1-163-037-11 | s CERAMIC, CHIP 0.022uF 10% 25V |

(VA-76 BOARD)

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|-----------------------------------|
| C348 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C349 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C350 | 1-109-540-00 | s MICA 180PF 5% 100V |
| C351 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C352 | 1-126-154-11 | s ELECT 47uF 20% 6.3V |
| C354 | 1-131-341-00 | s TANTALUM 0.1uF 10% 35V |
| C355 | 1-124-584-00 | s ELECT 100uF 20% 10V |
| C356 | 1-124-234-00 | s ELECT 22uF 20% 16V |
| C357 | 1-124-234-00 | s ELECT 22uF 20% 16V |
| C358 | 1-124-584-00 | s ELECT 100uF 20% 10V |
| C359 | 1-126-101-11 | s ELECT 100uF 20% 16V |
| C402 | 1-163-037-11 | s CERAMIC, CHIP 0.022uF 10% 25V |
| C403 | 1-124-584-00 | s ELECT 100uF 20% 10V |
| C404 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C405 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C406 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C412 | 1-130-487-00 | s MYLAR 0.022uF 5% 50V |
| C413 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C421 | 1-163-023-00 | s CERAMIC, CHIP 0.015uF 5% 50V |
| C423 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C424 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C425 | 1-124-584-00 | s ELECT 100uF 20% 10V |
| C427 | 1-124-234-00 | s ELECT 22uF 20% 16V |
| C428 | 1-124-234-00 | s ELECT 22uF 20% 16V |
| C431 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C437 | 1-124-584-00 | s ELECT 100uF 20% 10V |
| C439 | 1-124-234-00 | s ELECT 22uF 20% 16V |
| C441 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C442 | 1-107-167-00 | s MICA 75PF 5% 50V |
| C502 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C505 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C506 | 1-124-463-00 | s ELECT 0.1uF 20% 50V |
| C507 | 1-162-872-11 | s CERAMIC 51PF 5% 50V |
| C512 | 1-124-584-00 | s ELECT 100uF 20% 10V |
| C513 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C516 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C519 | 1-162-889-11 | s CERAMIC 680PF 5% 50V |
| C520 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C521 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C523 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C524 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C525 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C527 | 1-163-037-11 | s CERAMIC, CHIP 0.022uF 10% 25V |
| C528 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C529 | 1-127-485-11 | s ELECT 33uF 6.3V |
| C531 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C532 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C603 | 1-124-446-11 | s ELECT 47uF 20% 10V |
| C607 | 1-163-037-11 | s CERAMIC, CHIP 0.022uF 10% 25V |
| C608 | 1-126-154-11 | s ELECT 47uF 20% 6.3V |
| C609 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C612 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C613 | 1-126-153-11 | s ELECT 22uF 20% 6.3V |
| C615 | 1-163-037-11 | s CERAMIC, CHIP 0.022uF 10% 25V |
| C616 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C618 | 1-164-161-11 | s CERAMIC, CHIP 0.0022uF 10% 100V |
| C619 | 1-126-153-11 | s ELECT 22uF 20% 6.3V |
| C620 | 1-163-037-11 | s CERAMIC, CHIP 0.022uF 10% 25V |
| C631 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C632 | 1-126-094-11 | s ELECT 4.7uF 20% 35V |

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

(VA-76 BOARD)

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|-----------------------------------|
| C633 | 1-126-094-11 | s ELECT 4.7uF 20% 35V |
| C634 | 1-126-154-11 | s ELECT 47uF 20% 6.3V |
| C635 | 1-126-153-11 | s ELECT 22uF 20% 6.3V |
| C636 | 1-126-153-11 | s ELECT 22uF 20% 6.3V |
| C637 | 1-126-153-11 | s ELECT 22uF 20% 6.3V |
| C638 | 1-126-094-11 | s ELECT 4.7uF 20% 35V |
| C639 | 1-126-094-11 | s ELECT 4.7uF 20% 35V |
| C640 | 1-130-483-00 | s MYLAR 0.01uF 5% 50V |
| C641 | 1-130-487-00 | s MYLAR 0.022uF 5% 50V |
| C643 | 1-130-483-00 | s MYLAR 0.01uF 5% 50V |
| C644 | 1-130-489-00 | s MYLAR 0.033uF 5% 50V |
| C645 | 1-130-486-00 | s MYLAR 0.018uF 10% 50V |
| C646 | 1-130-486-00 | s MYLAR 0.018uF 10% 50V |
| C671 | 1-126-153-11 | s ELECT 22uF 20% 6.3V |
| C673 | 1-130-475-00 | s MYLAR 0.0022uF 5% 50V |
| C674 | 1-130-475-00 | s MYLAR 0.0022uF 5% 50V |
| C675 | 1-130-478-00 | s MYLAR 0.0039uF 5% 50V |
| C676 | 1-131-345-00 | s TANTALUM 0.47uF 10% 35V |
| C677 | 1-130-497-00 | s MYLAR 0.15uF 5% 50V |
| C678 | 1-130-485-00 | s MYLAR 0.015uF 5% 50V |
| C679 | 1-126-160-11 | s ELECT 1uF 20% 50V |
| C680 | 1-130-499-00 | s MYLAR 0.22uF 5% 50V |
| C681 | 1-130-495-00 | s MYLAR 0.1uF 5% 50V |
| C682 | 1-130-492-11 | s MYLAR 0.056uF 5% 50V |
| C683 | 1-126-160-11 | s ELECT 1uF 20% 50V |
| C684 | 1-130-480-00 | s MYLAR 0.0056uF 5% 50V |
| C685 | 1-130-483-00 | s MYLAR 0.01uF 5% 50V |
| C686 | 1-124-225-00 | s ELECT 100uF 20% 6.3V |
| C688 | 1-124-225-00 | s ELECT 100uF 20% 6.3V |
| C705 | 1-126-154-11 | s ELECT 47uF 20% 6.3V |
| C706 | 1-124-446-11 | s ELECT 47uF 20% 10V |
| C707 | 1-163-037-11 | s CERAMIC, CHIP 0.022uF 10% 25V |
| C708 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C709 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C710 | 1-126-153-11 | s ELECT 22uF 20% 6.3V |
| C712 | 1-163-037-11 | s CERAMIC, CHIP 0.022uF 10% 25V |
| C713 | 1-130-485-00 | s MYLAR 0.015uF 5% 50V |
| C715 | 1-126-154-11 | s ELECT 47uF 20% 6.3V |
| C716 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C717 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C719 | 1-164-161-11 | s CERAMIC, CHIP 0.0022uF 10% 100V |
| C721 | 1-126-153-11 | s ELECT 22uF 20% 6.3V |
| C725 | 1-163-037-11 | s CERAMIC, CHIP 0.022uF 10% 25V |
| C731 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C732 | 1-126-094-11 | s ELECT 4.7uF 20% 35V |
| C733 | 1-126-094-11 | s ELECT 4.7uF 20% 35V |
| C734 | 1-126-154-11 | s ELECT 47uF 20% 6.3V |
| C735 | 1-126-153-11 | s ELECT 22uF 20% 6.3V |
| C736 | 1-126-153-11 | s ELECT 22uF 20% 6.3V |
| C737 | 1-126-153-11 | s ELECT 22uF 20% 6.3V |
| C738 | 1-126-094-11 | s ELECT 4.7uF 20% 35V |
| C739 | 1-126-094-11 | s ELECT 4.7uF 20% 35V |
| C740 | 1-130-483-00 | s MYLAR 0.01uF 5% 50V |
| C741 | 1-130-487-00 | s MYLAR 0.022uF 5% 50V |
| C743 | 1-130-483-00 | s MYLAR 0.01uF 5% 50V |
| C744 | 1-130-489-00 | s MYLAR 0.033uF 5% 50V |
| C745 | 1-130-486-00 | s MYLAR 0.018uF 10% 50V |
| C746 | 1-130-486-00 | s MYLAR 0.018uF 10% 50V |
| C771 | 1-126-153-11 | s ELECT 22uF 20% 6.3V |
| C773 | 1-130-475-00 | s MYLAR 0.0022uF 5% 50V |

(VA-76 BOARD)

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|---------------------------------|
| C774 | 1-130-475-00 | s MYLAR 0.0022uF 5% 50V |
| C775 | 1-130-478-00 | s MYLAR 0.0039uF 5% 50V |
| C776 | 1-131-345-00 | s TANTALUM 0.47uF 10% 35V |
| C777 | 1-130-497-00 | s MYLAR 0.15uF 5% 50V |
| C778 | 1-130-485-00 | s MYLAR 0.015uF 5% 50V |
| C779 | 1-126-160-11 | s ELECT 1uF 20% 50V |
| C780 | 1-130-499-00 | s MYLAR 0.22uF 5% 50V |
| C781 | 1-130-495-00 | s MYLAR 0.1uF 5% 50V |
| C782 | 1-130-492-11 | s MYLAR 0.056uF 5% 50V |
| C783 | 1-126-160-11 | s ELECT 1uF 20% 50V |
| C784 | 1-130-480-00 | s MYLAR 0.0056uF 5% 50V |
| C785 | 1-130-483-00 | s MYLAR 0.01uF 5% 50V |
| C801 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C802 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C813 | 1-124-584-00 | s ELECT 100uF 20% 10V |
| C814 | 1-124-584-00 | s ELECT 100uF 20% 10V |
| C815 | 1-124-584-00 | s ELECT 100uF 20% 10V |
| C816 | 1-124-584-00 | s ELECT 100uF 20% 10V |
| C817 | 1-124-225-00 | s ELECT 100uF 20% 6.3V |
| C820 | 1-124-225-00 | s ELECT 100uF 20% 6.3V |
| C821 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C822 | 1-126-176-11 | s ELECT 220uF 20% 10V |
| C824 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C832 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C833 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C834 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C835 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C871 | 1-126-153-11 | s ELECT 22uF 20% 6.3V |
| C872 | 1-131-384-00 | s TANTALUM 15uF 10% 6.3V |
| C873 | 1-126-094-11 | s ELECT 4.7uF 20% 35V |
| C874 | 1-130-494-11 | s MYLAR 0.082uF 5% 50V |
| C875 | 1-126-153-11 | s ELECT 22uF 20% 6.3V |
| C876 | 1-131-384-00 | s TANTALUM 15uF 10% 6.3V |
| C877 | 1-126-094-11 | s ELECT 4.7uF 20% 35V |
| C878 | 1-130-494-11 | s MYLAR 0.082uF 5% 50V |
| C879 | 1-124-464-11 | s ELECT 0.22uF 20% 50V |
| C880 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C884 | 1-124-442-00 | s ELECT 330uF 20% 6.3V |
| C901 | 1-124-898-11 | s ELECT 4700uF 20% 16V |
| C902 | 1-124-898-11 | s ELECT 4700uF 20% 16V |
| C903 | 1-102-106-00 | s CERAMIC 100PF 10% 50V |
| C906 | 1-163-037-11 | s CERAMIC, CHIP 0.022uF 10% 25V |
| C908 | 1-124-589-11 | s ELECT 47uF 20% 16V |
| C909 | 1-126-157-11 | s ELECT 10uF 20% 16V |
| C910 | 1-126-101-11 | s ELECT 100uF 20% 16V |
| C911 | 1-163-037-11 | s CERAMIC, CHIP 0.022uF 10% 25V |
| C912 | 1-124-225-00 | s ELECT 100uF 20% 6.3V |
| C913 | 1-126-160-11 | s ELECT 1uF 20% 50V |
| C914 | 1-127-514-00 | s ELECT(SOLID) 33uF 20% 16V |
| C915 | 1-127-514-00 | s ELECT(SOLID) 33uF 20% 16V |
| C916 | 1-127-514-00 | s ELECT(SOLID) 33uF 20% 16V |
| C917 | 1-127-514-00 | s ELECT(SOLID) 33uF 20% 16V |
| C918 | 1-126-154-11 | s ELECT 47uF 20% 6.3V |
| C922 | 1-161-021-11 | s CERAMIC 0.047uF 10% 25V |
| C923 | 1-161-051-00 | s CERAMIC 0.01uF 10% 50V |
| CN501 | 1-563-336-11 | o HOUSING, 64P |
| CN504 | 1-508-901-00 | o CONNECTOR, 3P, MALE |
| CN505 | 1-562-717-11 | o CONNECTOR, 34P, MALE |
| CN506 | 1-562-717-11 | o CONNECTOR, 34P, MALE |

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

(VA-76 BOARD)

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|------------------------|
| CN513 | 1-506-476-11 | o CONNECTOR, 11P, MALE |
| CN514 | 1-506-485-11 | s CONNECTOR, 6P, MALE |
| CN517 | 1-506-487-11 | s CONNECTOR, 8P, MALE |
| CN518 | 1-506-485-11 | s CONNECTOR, 6P, MALE |
| CN519 | 1-506-469-11 | o CONNECTOR, 4P, MALE |
| CN520 | 1-506-482-11 | s CONNECTOR, 3P, MALE |
| CN521 | 1-506-485-11 | s CONNECTOR, 6P, MALE |
| CN525 | 1-506-483-21 | o CONNECTOR, 4P, MALE |
| CN526 | 1-506-473-11 | s CONNECTOR, 8P, MALE |
| CN527 | 1-506-469-11 | o CONNECTOR, 4P, MALE |
| CN528 | 1-506-468-11 | s CONNECTOR, 3P, MALE |
| CN530 | 1-506-473-11 | o CONNECTOR, 8P, MALE |
| CN531 | 1-506-468-11 | s CONNECTOR, 3P, MALE |
| CN532 | 1-506-468-11 | s CONNECTOR, 3P, MALE |
| CN533 | 1-506-483-21 | s CONNECTOR, 4P, MALE |
| CN590 | 1-506-481-11 | o CONNECTOR, 2P, MALE |
| CN1005 | 1-507-195-21 | s JACK, REMOTE CONTROL |
| CP671 | 1-236-017-11 | s FILTER, LOW-PASS |
| CP771 | 1-236-017-11 | s FILTER, LOW-PASS |
| CV1 | 1-141-276-00 | s CAP, TRIMMER B |
| CV501 | 1-141-365-11 | s CAP, TRIMMER 100PF |
| D1 | 8-719-109-44 | s DIODE 1SS99-1 |
| D2 | 8-719-109-44 | s DIODE 1SS99-1 |
| D3 | 8-719-100-05 | s DIODE 1S2837 |
| D8 | 8-719-100-05 | s DIODE 1S2837 |
| D9 | 8-719-100-05 | s DIODE 1S2837 |
| D10 | 8-719-109-72 | s DIODE RD3.9ES-B2 |
| D11 | 8-719-100-05 | s DIODE 1S2837 |
| D12 | 8-719-100-05 | s DIODE 1S2837 |
| D13 | 8-719-812-41 | s LED TLR124, RED |
| D14 | 8-719-911-19 | s DIODE 1SS119 |
| D301 | 8-719-100-03 | s DIODE 1S2835 |
| D303 | 8-719-100-05 | s DIODE 1S2837 |
| D305 | 8-719-100-05 | s DIODE 1S2837 |
| D306 | 8-719-100-03 | s DIODE 1S2835 |
| D307 | 8-719-100-05 | s DIODE 1S2837 |
| D311 | 8-719-101-97 | s DIODE 1SS97-1 |
| D312 | 8-719-101-97 | s DIODE 1SS97-1 |
| D313 | 8-719-109-44 | s DIODE 1SS99-1 |
| D314 | 8-719-109-44 | s DIODE 1SS99-1 |
| D315 | 8-719-109-44 | s DIODE 1SS99-1 |
| D316 | 8-719-109-44 | s DIODE 1SS99-1 |
| D401 | 8-719-100-05 | s DIODE 1S2837 |
| D402 | 8-719-100-05 | s DIODE 1S2837 |
| D403 | 8-719-100-05 | s DIODE 1S2837 |
| D405 | 8-719-109-44 | s DIODE 1SS99-1 |
| D406 | 8-719-109-44 | s DIODE 1SS99-1 |
| D407 | 8-719-109-44 | s DIODE 1SS99-1 |
| D408 | 8-719-109-44 | s DIODE 1SS99-1 |
| D501 | 8-719-100-05 | s DIODE 1S2837 |
| D503 | 8-719-100-05 | s DIODE 1S2837 |
| D504 | 8-719-100-05 | s DIODE 1S2837 |
| D631 | 8-719-100-05 | s DIODE 1S2837 |
| D632 | 8-719-800-76 | s DIODE 1SS226 |
| D731 | 8-719-100-05 | s DIODE 1S2837 |
| D732 | 8-719-800-76 | s DIODE 1SS226 |
| D801 | 8-719-106-53 | s DIODE RD10M-B2 |
| D804 | 8-719-100-05 | s DIODE 1S2837 |

(VA-76 BOARD)

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|----------------|----------------------------|
| D805 | 8-719-100-05 | s DIODE 1S2837 |
| D806 | 8-719-100-05 | s DIODE 1S2837 |
| D807 | 8-719-200-02 | s DIODE 10E2 |
| D831 | 8-719-100-05 | s DIODE 1S2837 |
| D832 | 8-719-100-05 | s DIODE 1S2837 |
| D833 | 8-719-100-05 | s DIODE 1S2837 |
| D835 | 8-719-100-05 | s DIODE 1S2837 |
| D871 | 8-719-105-40 | s DIODE RD3.0M-B2 |
| D901 | 8-719-100-05 | s DIODE 1S2837 |
| D902 | 8-719-105-40 | s DIODE RD3.0M-B2 |
| D903 | 8-719-100-05 | s DIODE 1S2837 |
| D904 | 8-719-100-05 | s DIODE 1S2837 |
| D905 | 8-719-933-70 | s DIODE HZS11C2L |
| D907 | 8-719-911-19 | s DIODE 1SS119 |
| D908 | 8-719-100-05 | s DIODE 1S2837 |
| D909 | 8-719-104-34 | s DIODE 1S2836 |
| D910 | 8-719-110-13 | s DIODE RD9.1ESB2 |
| D911 | 8-719-200-02 | s DIODE 10E2 |
| D912 | 8-719-200-02 | s DIODE 10E2 |
| D913 | 8-719-106-45 | s DIODE RD9.1M-B3 |
| D914 | 8-719-200-02 | s DIODE 10E2 |
| D915 | 8-719-800-76 | s DIODE 1SS226 |
| D916 | 8-719-911-19 | s DIODE 1SS119 |
| DDC901 | 1-464-528-11 | s CONVERTER UNIT, DC-DC |
| DL1 | 1-415-452-21 | s DELAY LINE 810nS |
| DL2 | 1-415-154-00 | s DELAY LINE 35nS |
| DL3 | 1-415-154-00 | s DELAY LINE 35nS |
| DL4 | 1-415-544-11 | s DELAY LINE 450nS |
| F901 | Δ 1-532-325-00 | s FUSE, TIME-LAG 6.3A 250V |
| FL1 | 1-235-009-21 | s FILTER, HIGH-PASS |
| FL2 | 1-231-581-21 | s FILTER, HIGH-PASS |
| FL3 | 1-235-478-11 | s FILTER, HIGH-PASS |
| FL4 | 1-235-477-11 | s FILTER, HIGH-PASS |
| FL5 | 1-236-039-11 | s FILTER, LOW-PASS |
| FL6 | 1-235-469-11 | s FILTER, LOW-PASS |
| FL7 | 1-235-473-11 | s FILTER, LOW-PASS |
| FL8 | 1-409-410-11 | s FILTER, TRAP 4.4MHZ |
| IC1 | 8-751-870-00 | s IC CX187 |
| IC2 | 8-759-200-60 | s IC TA7060AP |
| IC3 | 8-759-206-29 | s IC TA7060AP-SONY |
| IC4 | 8-752-006-12 | s IC CX20061 |
| IC5 | 8-749-900-68 | s IC BX1447L |
| IC6 | 8-749-900-59 | s IC BX1448L |
| IC7 | 8-752-004-50 | s IC CX20045 |
| IC8 | 8-752-006-12 | s IC CX20061 |
| IC9 | 8-759-400-06 | s IC AN608P |
| IC10 | 8-741-114-00 | s IC BX1140 |
| IC11 | 8-759-922-36 | s IC CX20060 |
| IC12 | 8-759-400-06 | s IC AN608P |
| IC13 | 8-759-111-69 | s IC UPC1037HA |
| IC14 | 8-759-908-17 | s IC TL082CPS |
| IC15 | 8-759-208-11 | s IC TC4053BFHB |
| IC16 | 8-759-400-06 | s IC AN608P |
| IC17 | 8-759-207-38 | s IC TA7374P |
| IC18 | 8-752-322-34 | s IC CXL5003M |
| IC19 | 8-759-941-68 | s IC BA7131F |
| IC20 | 8-759-100-93 | s IC UPC393G2 |

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

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| Ref. No. or Q'ty | Part No. | SP | Description |
|---------------------|--------------|----|----------------|
| IC21 | 8-759-982-21 | s | IC RC78L05A |
| IC22 | 8-759-708-09 | s | IC NJM78L09A |
| IC23 | 8-759-100-93 | s | IC UPC393G2 |
| IC24 | 8-759-200-90 | s | IC TC4538BF |
| IC301 | 8-759-200-60 | s | IC TA7060AP |
| IC302 | 8-759-200-60 | s | IC TA7060AP |
| IC403 | 8-759-200-90 | s | IC TC4538BF |
| IC404 | 8-759-200-68 | s | IC TC4011BF |
| IC405 | 8-752-006-12 | s | IC CX20061 |
| IC406 | 8-759-200-60 | s | IC TA7060AP |
| IC501 | 8-759-208-11 | s | IC TC4053BFHB |
| IC502 | 8-759-324-11 | s | IC HA12411 |
| IC503 | 8-759-201-47 | s | IC TA7357AP |
| IC504 | 8-759-929-19 | s | IC MB88323PF |
| IC601 | 8-759-700-09 | s | IC NJM2043M-D |
| IC602 | 8-759-981-XX | s | IC RC4560M |
| IC604 | 8-759-700-43 | s | IC NJM4558M |
| IC605 | 8-759-700-43 | s | IC NJM4558M |
| IC606 | 8-752-031-28 | s | IC CXA1098Q |
| IC607 | 8-759-700-43 | s | IC NJM4558M |
| IC608 | 8-759-700-43 | s | IC NJM4558M |
| IC609 | 8-759-700-43 | s | IC NJM4558M |
| IC610 | 8-759-008-82 | s | IC MC14013BF |
| IC611 | 8-759-100-95 | s | IC UPC324G2 |
| IC612 | 8-759-200-68 | s | IC TC4011BF |
| IC613 | 8-759-208-15 | s | IC TC4066BFHB |
| IC614 | 8-759-208-11 | s | IC TC4053BFHB |
| IC615 | 8-759-209-90 | s | IC TC4S71F |
| IC616 | 8-759-209-90 | s | IC TC4S71F |
| IC901 | 8-759-700-43 | s | IC NJM4558M |
| IC902 | 8-759-912-55 | s | IC S-81250HG |
| IC903 | 8-759-278-06 | s | IC TA78L006AP |
| L1 | 1-408-420-00 | s | INDUCTOR 82uH |
| L3 | 1-410-087-31 | s | INDUCTOR 10mH |
| L4 | 1-410-482-31 | s | INDUCTOR 100uH |
| L6 | 1-410-494-11 | s | INDUCTOR 1mH |
| L7 | 1-410-482-31 | s | INDUCTOR 100uH |
| L8 | 1-410-482-31 | s | INDUCTOR 100uH |
| L9 | 1-410-482-31 | s | INDUCTOR 100uH |
| L10 | 1-410-482-31 | s | INDUCTOR 100uH |
| L15 | 1-410-473-11 | s | INDUCTOR 18uH |
| L16 | 1-410-482-31 | s | INDUCTOR 100uH |
| L17 | 1-410-482-31 | s | INDUCTOR 100uH |
| L18 | 1-410-468-11 | s | INDUCTOR 6.8uH |
| L21 | 1-410-482-31 | s | INDUCTOR 100uH |
| L22 | 1-410-471-11 | s | INDUCTOR 12uH |
| L23 | 1-410-471-11 | s | INDUCTOR 12uH |
| L26 | 1-410-482-31 | s | INDUCTOR 100uH |
| L27 | 1-410-478-11 | s | INDUCTOR 47uH |
| L28 | 1-410-482-31 | s | INDUCTOR 100uH |
| L29 | 1-410-482-31 | s | INDUCTOR 100uH |
| L30 | 1-410-482-31 | s | INDUCTOR 100uH |
| L31 | 1-410-470-11 | s | INDUCTOR 10uH |
| L32 | 1-410-482-31 | s | INDUCTOR 100uH |
| L33 | 1-410-468-11 | s | INDUCTOR 6.8uH |
| L201 | 1-408-406-00 | s | INDUCTOR 5.6uH |
| L202 | 1-410-482-31 | s | INDUCTOR 100uH |
| L204 | 1-410-482-31 | s | INDUCTOR 100uH |
| L205 | 1-410-482-31 | s | INDUCTOR 100uH |

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| Ref. No. or Q'ty | Part No. | SP | Description |
|---------------------|----------------|----|----------------------|
| L206 | 1-410-482-31 | s | INDUCTOR 100uH |
| L207 | 1-410-482-31 | s | INDUCTOR 100uH |
| L208 | 1-410-482-31 | s | INDUCTOR 100uH |
| L209 | 1-410-482-31 | s | INDUCTOR 100uH |
| L212 | 1-410-482-31 | s | INDUCTOR 100uH |
| L301 | 1-410-482-31 | s | INDUCTOR 100uH |
| L302 | 1-410-482-31 | s | INDUCTOR 100uH |
| L303 | 1-410-482-31 | s | INDUCTOR 100uH |
| L304 | 1-408-425-00 | s | INDUCTOR 220uH |
| L306 | 1-410-087-31 | s | INDUCTOR 10mH |
| L307 | 1-410-087-31 | s | INDUCTOR 10mH |
| L308 | 1-410-482-31 | s | INDUCTOR 100uH |
| L401 | 1-410-482-31 | s | INDUCTOR 100uH |
| L403 | 1-410-482-31 | s | INDUCTOR 100uH |
| L405 | 1-410-482-31 | s | INDUCTOR 100uH |
| L406 | 1-410-470-11 | s | INDUCTOR 10uH |
| L502 | 1-410-464-11 | s | INDUCTOR 3.3uH |
| L504 | 1-408-642-00 | s | INDUCTOR 32.3uH |
| L505 | 1-410-482-31 | s | INDUCTOR 100uH |
| L506 | 1-410-482-31 | s | INDUCTOR 100uH |
| L507 | 1-410-482-31 | s | INDUCTOR 100uH |
| LV1 | 1-407-565-00 | s | COIL, VAR 2.2uH |
| LV2 | 1-407-268-00 | s | INDUCTOR, VAR 1.5mH |
| LV601 | 1-410-856-12 | s | COIL, VAR 22mH |
| LV602 | 1-410-856-12 | s | COIL, VAR 22mH |
| LV603 | 1-410-856-12 | s | COIL, VAR 22mH |
| LV701 | 1-410-856-12 | s | COIL, VAR 22mH |
| LV702 | 1-410-856-12 | s | COIL, VAR 22mH |
| LV703 | 1-410-856-12 | s | COIL, VAR 22mH |
| LV704 | 1-410-856-12 | s | COIL, VAR 22mH |
| PS901 | △ 1-532-605-00 | s | LINK, IC 0.4A |
| PS902 | △ 1-532-846-11 | s | LINK, IC 5.0A |
| PS903 | △ 1-532-846-11 | s | LINK, IC 5.0A |
| Q1 | 8-729-271-22 | s | TRANSISTOR 2SC2712-G |
| Q3 | 8-729-271-22 | s | TRANSISTOR 2SC2712-G |
| Q4 | 8-729-271-22 | s | TRANSISTOR 2SC2712-G |
| Q5 | 8-729-271-22 | s | TRANSISTOR 2SC2712-G |
| Q6 | 8-729-216-22 | s | TRANSISTOR 2SA1162 |
| Q7 | 8-729-216-22 | s | TRANSISTOR 2SA1162 |
| Q8 | 8-729-271-22 | s | TRANSISTOR 2SC2712-G |
| Q9 | 8-729-384-48 | s | TRANSISTOR 2SA844-E |
| Q10 | 8-729-122-63 | s | TRANSISTOR 2SA1226 |
| Q11 | 8-729-271-22 | s | TRANSISTOR 2SC2712-G |
| Q12 | 8-729-271-22 | s | TRANSISTOR 2SC2712-G |
| Q13 | 8-729-271-22 | s | TRANSISTOR 2SC2712-G |
| Q23 | 8-729-271-22 | s | TRANSISTOR 2SC2712-G |
| Q24 | 8-729-271-22 | s | TRANSISTOR 2SC2712-G |
| Q26 | 8-729-216-22 | s | TRANSISTOR 2SA1162 |
| Q27 | 8-729-271-22 | s | TRANSISTOR 2SC2712-G |
| Q28 | 8-729-271-22 | s | TRANSISTOR 2SC2712-G |
| Q29 | 8-729-901-01 | s | TRANSISTOR DTC144EK |
| Q30 | 8-729-901-01 | s | TRANSISTOR DTC144EK |
| Q31 | 8-729-603-50 | s | TRANSISTOR 2SC403SP |
| Q32 | 8-729-901-01 | s | TRANSISTOR DTC144EK |
| Q33 | 8-729-271-22 | s | TRANSISTOR 2SC2712-G |
| Q34 | 8-729-271-22 | s | TRANSISTOR 2SC2712-G |
| Q35 | 8-729-400-76 | s | TRANSISTOR 2SD1030 |
| Q36 | 8-729-271-22 | s | TRANSISTOR 2SC2712-G |

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

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| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|------------------------|
| Q37 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q38 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q39 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q41 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q42 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q43 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q44 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q45 | 8-729-201-27 | s TRANSISTOR 2SC2715-Y |
| Q46 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q47 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q48 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q49 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q50 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q51 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q52 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q53 | 8-729-201-05 | s TRANSISTOR 2SC2878-B |
| Q54 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q55 | 8-729-100-66 | s TRANSISTOR 2SC1623 |
| Q56 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q57 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q58 | 8-729-100-66 | s TRANSISTOR 2SC1623 |
| Q59 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q60 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q61 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q62 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q201 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q204 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q205 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q206 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q207 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q208 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q209 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q210 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q211 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q212 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q213 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q214 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q301 | 8-729-177-22 | s TRANSISTOR 2SB772-Q |
| Q302 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q303 | 8-729-177-22 | s TRANSISTOR 2SB772-Q |
| Q304 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q305 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q306 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q307 | 8-729-113-32 | s TRANSISTOR 2SB733 |
| Q308 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q309 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q310 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q311 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q321 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q322 | 8-729-400-76 | s TRANSISTOR 2SD1030 |
| Q323 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q324 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q325 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q326 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q327 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q328 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q329 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q330 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q331 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q332 | 8-729-603-50 | s TRANSISTOR 2SC403SP |

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| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|------------------------|
| Q333 | 8-729-603-50 | s TRANSISTOR 2SC403SP |
| Q341 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q342 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q343 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q344 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q345 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q346 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q401 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q402 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q403 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q404 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q406 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q407 | 8-729-400-76 | s TRANSISTOR 2SD1030 |
| Q408 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q409 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q410 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q501 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q502 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q503 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q504 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q505 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q506 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q507 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q508 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q509 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q510 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q511 | 8-729-603-50 | s TRANSISTOR 2SC403SP |
| Q512 | 8-729-603-50 | s TRANSISTOR 2SC403SP |
| Q513 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q514 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q601 | 8-729-178-55 | s TRANSISTOR 2SC2785-E |
| Q602 | 8-729-178-55 | s TRANSISTOR 2SC2785-E |
| Q603 | 8-729-202-38 | s TRANSISTOR 2SC3326N |
| Q604 | 8-729-902-99 | s TRANSISTOR DTC114TK |
| Q605 | 8-729-202-38 | s TRANSISTOR 2SC3326N |
| Q606 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q607 | 8-729-202-38 | s TRANSISTOR 2SC3326N |
| Q608 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q610 | 8-729-902-99 | s TRANSISTOR DTC114TK |
| Q631 | 8-729-178-55 | s TRANSISTOR 2SC2785-E |
| Q632 | 8-729-178-55 | s TRANSISTOR 2SC2785-E |
| Q633 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q634 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q635 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q636 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q637 | 8-729-109-42 | s TRANSISTOR 2SK94-X2 |
| Q639 | 8-729-901-06 | s TRANSISTOR DTA144EK |
| Q640 | 8-729-902-99 | s TRANSISTOR DTC114TK |
| Q671 | 8-729-202-38 | s TRANSISTOR 2SC3326N |
| Q672 | 8-729-902-99 | s TRANSISTOR DTC114TK |
| Q701 | 8-729-178-55 | s TRANSISTOR 2SC2785-E |
| Q702 | 8-729-178-55 | s TRANSISTOR 2SC2785-E |
| Q703 | 8-729-202-38 | s TRANSISTOR 2SC3326N |
| Q704 | 8-729-902-99 | s TRANSISTOR DTC114TK |
| Q705 | 8-729-202-38 | s TRANSISTOR 2SC3326N |
| Q706 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q707 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q708 | 8-729-202-38 | s TRANSISTOR 2SC3326N |
| Q709 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q710 | 8-729-902-99 | s TRANSISTOR DTC114TK |

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

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| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|-----------------------------|
| Q731 | 8-729-178-55 | s TRANSISTOR 2SC2785-E |
| Q732 | 8-729-178-55 | s TRANSISTOR 2SC2785-E |
| Q733 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q734 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q735 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q736 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q737 | 8-729-109-42 | s TRANSISTOR 2SK94-X2 |
| Q739 | 8-729-901-06 | s TRANSISTOR DTA144EK |
| Q740 | 8-729-902-99 | s TRANSISTOR DTC114TK |
| Q771 | 8-729-202-38 | s TRANSISTOR 2SC3326N |
| Q772 | 8-729-902-99 | s TRANSISTOR DTC114TK |
| Q801 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q802 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q803 | 8-729-820-07 | s TRANSISTOR 2SD1685-G |
| Q811 | 8-729-905-53 | s TRANSISTOR 2SD1055-R |
| Q812 | 8-729-982-22 | s TRANSISTOR 2SB822 |
| Q813 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q814 | 8-729-901-06 | s TRANSISTOR DTA144EK |
| Q832 | 8-729-903-29 | s TRANSISTOR DTA114TK |
| Q833 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q834 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q835 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q836 | 8-729-903-29 | s TRANSISTOR DTA114TK |
| Q837 | 8-729-903-29 | s TRANSISTOR DTA114TK |
| Q838 | 8-729-901-06 | s TRANSISTOR DTA144EK |
| Q839 | 8-729-901-06 | s TRANSISTOR DTA144EK |
| Q840 | 8-729-901-06 | s TRANSISTOR DTA144EK |
| Q841 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q842 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q843 | 8-729-901-06 | s TRANSISTOR DTA144EK |
| Q844 | 8-729-901-06 | s TRANSISTOR DTA144EK |
| Q872 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q873 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q874 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q875 | 8-729-901-06 | s TRANSISTOR DTA144EK |
| Q901 | 8-729-205-32 | s TRANSISTOR 2SB553-Y |
| Q902 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q903 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q904 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q905 | 8-729-271-22 | s TRANSISTOR 2SC2712-G |
| Q907 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q908 | 8-729-113-32 | s TRANSISTOR 2SB733 |
| Q909 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q910 | 8-729-113-32 | s TRANSISTOR 2SB733 |
| Q911 | 8-729-113-32 | s TRANSISTOR 2SB733 |
| Q912 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q913 | 8-729-901-01 | s TRANSISTOR DTC144EK |
| Q914 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q915 | 8-729-216-22 | s TRANSISTOR 2SA1162 |
| Q916 | 8-729-900-53 | s TRANSISTOR DTC114EK |
| R3 | 1-215-416-00 | s METAL 620 1% 1/6W |
| R15 | 1-215-424-00 | s METAL 1.3K 1% 1/6W |
| R16 | 1-215-416-00 | s METAL 620 1% 1/6W |
| R19 | 1-215-397-00 | s METAL 100 1% 1/6W |
| R22 | 1-216-115-00 | s METAL, CHIP 560K 5% 1/10W |
| R24 | 1-215-424-00 | s METAL 1.3K 1% 1/6W |
| R30 | 1-215-427-00 | s METAL 1.8K 1% 1/6W |
| R34 | 1-215-397-00 | s METAL 100 1% 1/6W |
| R43 | 1-215-406-00 | s METAL 240 1% 1/6W |
| R45 | 1-215-411-00 | s METAL 390 1% 1/6W |

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| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|-------------------------------|
| R60 | 1-215-426-00 | s METAL 1.6K 1% 1/6W |
| R64 | 1-215-419-00 | s METAL 820 1% 1/6W |
| R65 | 1-215-405-00 | s METAL 220 1% 1/6W |
| R87 | 1-215-405-00 | s METAL 220 1% 1/6W |
| R89 | 1-215-409-00 | s METAL 330 1% 1/6W |
| R91 | 1-215-417-00 | s METAL 680 1% 1/6W |
| R103 | 1-215-424-00 | s METAL 1.3K 1% 1/6W |
| R106 | 1-215-432-00 | s METAL 3K 1% 1/6W |
| R107 | 1-215-413-00 | s METAL 470 1% 1/6W |
| R110 | 1-215-413-00 | s METAL 470 1% 1/6W |
| R125 | 1-216-650-11 | s METAL, CHIP 910 0.5% 1/10W |
| R135 | 1-215-437-00 | s METAL 4.7K 1% 1/6W |
| R139 | 1-215-445-00 | s METAL 10K 1% 1/6W |
| R140 | 1-215-433-00 | s METAL 3.3K 1% 1/6W |
| R156 | 1-215-429-00 | s METAL 2.2K 1% 1/6W |
| R158 | 1-215-441-00 | s METAL 6.8K 1% 1/6W |
| R159 | 1-215-433-00 | s METAL 3.3K 1% 1/6W |
| R162 | 1-215-419-00 | s METAL 820 1% 1/6W |
| R164 | 1-215-419-00 | s METAL 820 1% 1/6W |
| R179 | 1-216-039-00 | s METAL, CHIP 390 5% 1/10W |
| R199 | 1-216-651-11 | s METAL, CHIP 1K 0.5% 1/10W |
| R202 | 1-215-416-00 | s METAL 620 1% 1/6W |
| R210 | 1-215-405-00 | s METAL 220 1% 1/6W |
| R213 | 1-216-643-11 | s METAL, CHIP 470 0.5% 1/10W |
| R237 | 1-216-748-11 | s METAL, CHIP 39K 1% 1/10W |
| R310 | 1-249-414-11 | s CARBON 560 5% 1/4W |
| R327 | 1-215-413-00 | s METAL 470 1% 1/6W |
| R328 | 1-215-423-00 | s METAL 1.2K 1% 1/6W |
| R330 | 1-216-748-11 | s METAL, CHIP 39K 1% 1/10W |
| R335 | 1-215-423-00 | s METAL 1.2K 1% 1/6W |
| R340 | 1-216-011-00 | s METAL 27 5% 1/10W |
| R364 | 1-216-632-11 | s METAL, CHIP 160 0.5% 1/10W |
| R365 | 1-216-638-11 | s METAL, CHIP 300 0.5% 1/10W |
| R366 | 1-215-395-00 | s METAL 82 1% 1/6W |
| R368 | 1-216-021-00 | s METAL, CHIP 68 5% 1/10W |
| R372 | 1-216-031-00 | s METAL, CHIP 180 5% 1/10W |
| R384 | 1-215-405-00 | s METAL 220 1% 1/6W |
| R385 | 1-215-412-00 | s METAL 430 1% 1/6W |
| R405 | 1-215-429-00 | s METAL 2.2K 1% 1/6W |
| R423 | 1-216-686-11 | s METAL, CHIP 30K 0.5% 1/10W |
| R452 | 1-215-397-00 | s METAL 100 1% 1/6W |
| R454 | 1-215-413-00 | s METAL 470 1% 1/6W |
| R455 | 1-215-423-00 | s METAL 1.2K 1% 1/6W |
| R462 | 1-216-027-00 | s METAL, CHIP 120 5% 1/10W |
| R550 | 1-216-691-11 | s METAL, CHIP 47K 0.5% 1/10W |
| R551 | 1-216-691-11 | s METAL, CHIP 47K 0.5% 1/10W |
| R651 | 1-216-115-00 | s METAL, CHIP 560K 5% 1/10W |
| R678 | 1-216-669-11 | s METAL, CHIP 5.6K 0.5% 1/10W |
| R679 | 1-216-685-11 | s METAL, CHIP 27K 0.5% 1/10W |
| R681 | 1-216-663-11 | s METAL, CHIP 3.3K 0.5% 1/10W |
| R682 | 1-216-645-11 | s METAL, CHIP 560 0.5% 1/10W |
| R683 | 1-216-665-11 | s METAL, CHIP 3.9K 0.5% 1/10W |
| R684 | 1-216-683-11 | s METAL, CHIP 22K 0.5% 1/10W |
| R685 | 1-216-672-11 | s METAL, CHIP 7.5K 0.5% 1/10W |
| R687 | 1-216-674-11 | s METAL, CHIP 9.1K 0.5% 1/10W |
| R688 | 1-216-651-11 | s METAL, CHIP 1K 0.5% 1/10W |
| R689 | 1-216-667-11 | s METAL, CHIP 4.7K 0.5% 1/10W |
| R751 | 1-216-115-00 | s METAL, CHIP 560K 5% 1/10W |
| R775 | 1-215-472-00 | s METAL 130K 1% 1/6W |
| R777 | 1-216-669-11 | s METAL, CHIP 5.6K 0.5% 1/10W |

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

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| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|-------------------------------|
| R778 | 1-216-685-11 | s METAL, CHIP 27K 0.5% 1/10W |
| R780 | 1-216-663-11 | s METAL, CHIP 3.3K 0.5% 1/10W |
| R781 | 1-216-645-11 | s METAL, CHIP 560 0.5% 1/10W |
| R782 | 1-216-665-11 | s METAL, CHIP 3.9K 0.5% 1/10W |
| R783 | 1-216-683-11 | s METAL, CHIP 22K 0.5% 1/10W |
| R784 | 1-216-672-11 | s METAL, CHIP 7.5K 0.5% 1/10W |
| R786 | 1-216-674-11 | s METAL, CHIP 9.1K 0.5% 1/10W |
| R787 | 1-216-651-11 | s METAL, CHIP 1K 0.5% 1/10W |
| R788 | 1-216-667-11 | s METAL, CHIP 4.7K 0.5% 1/10W |
| R908 | 1-216-311-00 | s METAL 6.8 5% 1/10W |
| R913 | 1-216-651-11 | s METAL, CHIP 1K 0.5% 1/10W |
| R914 | 1-216-675-11 | s METAL, CHIP 10K 0.5% 1/10W |
| R915 | 1-216-675-11 | s METAL, CHIP 10K 0.5% 1/10W |
| R920 | 1-216-675-11 | s METAL, CHIP 10K 0.5% 1/10W |
| R921 | 1-216-675-11 | s METAL, CHIP 10K 0.5% 1/10W |
| R928 | 1-216-675-11 | s METAL, CHIP 10K 0.5% 1/10W |
| R929 | 1-216-675-11 | s METAL, CHIP 10K 0.5% 1/10W |
| RV1 | 1-230-520-11 | s RES, ADJ, METAL 1K |
| RV2 | 1-230-520-11 | s RES, ADJ, METAL 1K |
| RV3 | 1-230-526-11 | s RES, ADJ, METAL 47K |
| RV4 | 1-230-520-11 | s RES, ADJ, METAL 1K |
| RV5 | 1-230-524-11 | s RES, ADJ, METAL 22K |
| RV6 | 1-230-523-11 | s RES, ADJ, METAL 10K |
| RV7 | 1-230-522-11 | s RES, ADJ, METAL 4.7K |
| RV8 | 1-230-522-11 | s RES, ADJ, METAL 4.7K |
| RV9 | 1-230-522-11 | s RES, ADJ, METAL 4.7K |
| RV10 | 1-230-526-11 | s RES, ADJ, METAL 47K |
| RV11 | 1-230-524-11 | s RES, ADJ, METAL 22K |
| RV12 | 1-230-521-11 | s RES, ADJ, METAL 2.2K |
| RV13 | 1-230-520-11 | s RES, ADJ, METAL 1K |
| RV15 | 1-230-519-11 | s RES, ADJ, METAL 470 |
| RV16 | 1-230-519-11 | s RES, ADJ, METAL 470 |
| RV17 | 1-230-520-11 | s RES, ADJ, METAL 1K |
| RV18 | 1-230-520-11 | s RES, ADJ, METAL 1K |
| RV19 | 1-230-520-11 | s RES, ADJ, METAL 1K |
| RV20 | 1-230-520-11 | s RES, ADJ, METAL 1K |
| RV21 | 1-230-520-11 | s RES, ADJ, METAL 1K |
| RV22 | 1-230-520-11 | s RES, ADJ, METAL 1K |
| RV23 | 1-230-524-11 | s RES, ADJ, METAL 22K |
| RV24 | 1-230-520-11 | s RES, ADJ, METAL 1K |
| RV25 | 1-230-521-11 | s RES, ADJ, METAL 2.2K |
| RV26 | 1-230-519-11 | s RES, ADJ, METAL 470 |
| RV27 | 1-230-521-11 | s RES, ADJ, METAL 2.2K |
| RV30 | 1-230-521-11 | s RES, ADJ, METAL 2.2K |
| RV301 | 1-230-523-11 | s RES, ADJ, METAL 10K |
| RV302 | 1-230-520-11 | s RES, ADJ, METAL 1K |
| RV303 | 1-230-520-11 | s RES, ADJ, METAL 1K |
| RV304 | 1-230-521-11 | s RES, ADJ, METAL 2.2K |
| RV401 | 1-230-527-11 | s RES, ADJ, METAL 100K |
| RV402 | 1-230-520-11 | s RES, ADJ, METAL 1K |
| RV403 | 1-230-521-11 | s RES, ADJ, METAL 2.2K |
| RV404 | 1-230-519-11 | s RES, ADJ, METAL 470 |
| RV405 | 1-230-521-11 | s RES, ADJ, METAL 2.2K |
| RV501 | 1-230-520-11 | s RES, ADJ, METAL 1K |
| RV601 | 1-230-527-11 | s RES, ADJ, METAL 100K |
| RV602 | 1-230-523-11 | s RES, ADJ, METAL 10K |
| RV604 | 1-230-522-11 | s RES, ADJ, METAL 4.7K |
| RV605 | 1-230-522-11 | s RES, ADJ, METAL 4.7K |
| RV606 | 1-230-528-11 | s RES, ADJ, METAL 220K |

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| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|------------------------|
| RV607 | 1-230-523-11 | s RES, ADJ, METAL 10K |
| RV631 | 1-230-526-11 | s RES, ADJ, METAL 47K |
| RV701 | 1-230-527-11 | s RES, ADJ, METAL 100K |
| RV702 | 1-230-523-11 | s RES, ADJ, METAL 10K |
| RV704 | 1-230-522-11 | s RES, ADJ, METAL 4.7K |
| RV705 | 1-230-522-11 | s RES, ADJ, METAL 4.7K |
| RV706 | 1-230-528-11 | s RES, ADJ, METAL 220K |
| RV707 | 1-230-523-11 | s RES, ADJ, METAL 10K |
| RV708 | 1-230-523-11 | s RES, ADJ, METAL 10K |
| RV731 | 1-230-526-11 | s RES, ADJ, METAL 47K |
| RV801 | 1-230-524-11 | s RES, ADJ, METAL 22K |
| RV831 | 1-230-522-11 | s RES, ADJ, METAL 4.7K |
| RV832 | 1-230-522-11 | s RES, ADJ, METAL 4.7K |
| RV871 | 1-230-529-11 | s RES, ADJ, METAL 470K |
| RV872 | 1-230-526-11 | s RES, ADJ, METAL 47K |
| RV873 | 1-230-526-11 | s RES, ADJ, METAL 47K |
| RV901 | 1-230-522-11 | s RES, ADJ, METAL 4.7K |
| RV902 | 1-230-524-11 | s RES, ADJ, METAL 22K |
| RV903 | 1-230-524-11 | s RES, ADJ, METAL 22K |
| S1 | 1-553-510-00 | s SWITCH, SLIDE |

VR-85 BOARD

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|--------------------------------|
| | 1-629-249-11 | o PRINTED CIRCUIT BOARD, VR-85 |
| RV1 | 1-237-764-12 | s RES, VAR CARBON 100K |

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

FRAME

Ref. No.
or Q'ty

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|---|
| | A-6709-664-A | s HEAD DRUM ASS'Y DUH-50A-R |
| | A-6709-665-A | s DRUM ASS'Y UPPER DUR-50-R |
| | 1-452-238-11 | o MAGNET, FIXED |
| | 1-558-261-31 | s WIRE, FLEXIBLE CARD, 30P (SY TO HN) |
| | 1-574-419-11 | s WIRE, FLEXIBLE CARD, 23P (SY TO SV) |
| | 1-574-420-11 | s WIRE, FLEXIBLE CARD, 34P (VA TO SY) |
| CN1001 | 1-564-603-11 | s CONNECTOR (WITH DC SW) 4P, MALE |
| CN1002 | 1-561-781-21 | s CONNECTOR, BNC, FEMALE "VIDEO IN" |
| CN1003 | 1-561-781-21 | s CONNECTOR, BNC, FEMALE "VIDEO OUT" |
| CN205 | 1-562-148-11 | o HOUSING, 3P |
| | 1-564-026-00 | o CONTACT, FEMALE, AWG26-30 |
| H1001 | 8-825-578-22 | s HEAD, ACE EPS264-5803 "AUDIO/CTL/CH-1 ERASE" |
| H1002 | 8-825-771-31 | s HEAD, TIME CODE PP295-58 "TIME CODE" |
| H1003 | 8-825-544-20 | s HEAD, ERASE EF248-58 "FULL ERASE" |
| M1001 | 8-835-235-01 | s MOTOR, DC MNR-2900B "DRUM" |
| M1002 | 1-541-163-00 | s MOTOR, DC "THREADING" |
| M1003 | 8-835-123-01 | s MOTOR, DC MNR-7400A "REEL" |
| M1004 | 8-835-351-01 | s MOTOR, DC BHF-1913B "CAPSTAN" |
| PM1001 | 1-454-381-11 | s SOLENOID "T-IDLER" |
| PM1002 | 1-454-383-11 | s SOLENOID "T-BRAKE" |
| PM1003 | 1-454-381-11 | s SOLENOID "S-IDLER" |
| PM1004 | 1-454-383-11 | s SOLENOID "S-BRAKE" |
| PM1005 | 1-454-386-11 | s SOLENOID "PINCH" |
| PM1006 | 1-454-382-11 | s SOLENOID "TEN-REG" |
| S1001 | 1-570-028-11 | s SWITCH, MICRO "THREAD END" |
| S1002 | 1-570-028-11 | s SWITCH, MICRO "UNTHREAD END" |
| S1003 | 1-570-028-21 | s SWITCH, MICRO "CASSETTE IN" |
| S1004 | 1-570-028-21 | s SWITCH, MICRO "CASSETTE LOCK" |
| S1005 | 1-570-028-11 | s SWITCH, MICRO "MISS REC" |
| S1006 | 1-570-028-11 | s SWITCH, MICRO "EJECT" |
| S1007 | 1-570-028-11 | s SWITCH, MICRO "SP" |

16-4. PACKING MATERIAL AND ACCESSORIES

PACKING MATERIALS & SUPPLIED ACCESSORIES

Ref. No.
or Q'ty

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|-----------------------|
| | 3-698-917-01 | o BELT, SHOULDER |
| | 3-731-655-01 | o CUSHION (UPPER) |
| | 3-731-656-01 | o CUSHION (LOWER) |
| | 3-786-830-11 | s MANUAL, INSTRUCTION |
| | 4-885-820-01 | s BAG, PROTECTION |

NOTE: Please see pages 16-27 and 16-28 for the parts that
are not listed in the parts list.

| Part No. | SP Description |
|----------|----------------|
|----------|----------------|

J-6009-830-A o FLATNESS PLATE
J-6080-029-A o SMALL MIRROR FOR ADJUSTMENT
J-6080-030-A o SPACE MIRROR
J-6130-010-A o REEL TABLE HEIGHT CHECK BASE JIG
J-6130-020-A o REEL TABLE HEIGHT CHECK JIG

2-034-697-00 o CLEANING PIECE
3-702-390-01 o ECCENTRIC SCREWDRIVER (4mm dia.)
7-700-736-01 o L-SHAPED HEXAGONAL WRENCH (1.27mm)
7-732-050-20 o TENSION SCALE (50G FULL SCALE)
7-732-050-30 o TENSION SCALE (100G FULL SCALE)

7-732-050-50 o TENSION SCALE (500G FULL SCALE)
8-960-020-62 o ALIGNMENT TAPE, RR5-2SB PAL
8-960-036-02 o ALIGNMENT TAPE, RR2-1SD PAL
8-960-036-80 o ALIGNMENT TAPE, RR5-1SD PAL
9-911-053-00 o THICKNESS GAUGE

Standard Products HEAD DEMAGNETIZER (HE-4)

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